



**UNIVERSITAT POLITÈCNICA  
DE CATALUNYA  
BARCELONATECH**

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**Estudi comparatiu de la publicació científica  
de la UPC i l'Escola de Camins  
vs. altres universitats d'àmbit internacional  
(2012-2021)**

**Biblioteca Rector Gabriel Ferraté  
Escola Tècnica Superior d'Enginyeria de Camins,  
Canals i Ports de Barcelona**

**Barcelona, 2022**

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de la UPC i l'Escola de Camins  
vs. altres universitats d'àmbit internacional  
(2012-2021)

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Canals i Ports de Barcelona

1a. edició – desembre de 2022



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## Abast de l'estudi

### 1. Abast temàtic

L'informe es centra en la publicació científica especialitzada en l'àmbit temàtic propi de l'Escola de Camins: l'enginyeria civil.

### 2. Abast geogràfic

Es comparen indicadors bibliomètrics de la UPC i l'Escola de Camins, amb els d'altres universitats internacionals amb activitat de recerca notable en l'àrea de l'enginyeria civil. Les universitats seleccionades són universitats europees, dels Estats Units i Llatinoamèrica escollides per la seva presència a diferents xarxes i rànquings internacionals, així com les altres dues universitats estatals amb més presència en l'àmbit de la recerca en enginyeria civil: la Universidad Politécnica de Madrid (UPM) i la Universitat Politècnica de València (UPV).

Aquesta selecció ha estat definida per la pròpia Escola en funció de la voluntat de l'Escola de Camins de comparar-se amb institucions de primera línia a nivell internacional.

### 3. Abast documental

Des del punt de vista de la tipologia documental, només s'ha treballat amb informació referent a articles publicats a revistes, deixant de banda comunicacions a congressos o altres tipologies pròpies de la publicació científica<sup>1</sup>.

### 4. Abast cronològic

Les referències analitzades corresponen a articles publicats entre l'1 de gener de 2012 i el 31 de desembre de 2021.

## Fonts d'informació

Les dades a partir de les quals s'ha elaborat l'estudi s'han extret de les bases de dades de [Clarivate Analytics: Web of Science Core Collection](#) (WoS) i [Journal Citation Reports](#) (JCR), abastament usades com a eina d'anàlisi bibliomètrica dins del món acadèmic.

---

<sup>1</sup> La base de dades Web of Science ja permet realitzar estudis de citacions de congressos, però les dades només es remunten a l'any 1990, a diferència de les dades referents a revistes que arrenquen el 1900.



## Metodologia

### 1. Recuperació dels articles de les especialitats de enginyeria civil

L'Enginyeria civil, tal i com la defineixen les eines de referència consultades, és una branca de l'enginyeria que aplica els coneixements de diferents àmbits del saber (matemàtiques, física, geologia, química, etc.) a temes tant diversos com les estructures, l'energia, la construcció, els transports, la hidrologia o el medi ambient. La recuperació de revistes i articles al Web of Science (WoS), per tant, es fa molt difícil ja que caldria considerar desenes d'epígrafs diferents.

Per aconseguir el llistat definitiu de títols, l'Escola de Camins va escollir 7 *Subject Categories* que són del seu interès analitzar: *Construction & Building Technology, Engineering, Civil, Engineering, Geological; Engineering, Multidisciplinary, Transportation, Transportation Science & Technology i Water Resources*. Finalment doncs, s'han executat cerques a WoS dels articles publicats a totes les revistes de les categories seleccionades, tot aplicant els límits cronològics i documentals descrits anteriorment. Com a resultat, s'han obtingut referències dels articles publicats a 388 revistes<sup>2</sup> –v. Annex 1- en les especialitats pròpies de l'Escola de Camins, durant el període en el que se centra l'estudi.

Com es veurà, el 56,04% de les publicacions UPC a les revistes finalment triades corresponen a l'Escola, de manera que es poden considerar representatives de l'enginyeria civil.

### 2. Recuperació dels articles publicats amb autoria de cada universitat

Una de les principals dificultats en l'elaboració d'estudis bibliomètrics prenent com a base WoS, és la manca generalitzada de normalització als noms d'autors i institucions. A diferència de les edicions anteriors, en aquest edició hem fet servir el nom que apareixia a l'índex *Organizations-Enhanced*. No hi ha variacions significatives respecte a la cerca pel nom + variants

Un cop executades les cerques, els resultats obtinguts s'han combinat amb els aconseguits en la cerca per títols de revista, que es descriu a l'apartat anterior. Com a resultat s'ha obtingut un llistat d'articles publicats en revistes de les especialitats JCR abans detallades, escrits per autors membres de cadascuna de les universitats contemplades a l'estudi.

### 3. Recuperació dels articles publicats amb autoria vinculada a l'Escola de Camins

Un cop recuperats els articles amb autoria UPC, l'obtenció dels articles amb PDI vinculat a l'Escola de Camins s'ha realitzat afegint una nova variable a la cerca: els noms dels autors i autores vinculats a l'Escola durant el període d'estudi; cada persona s'ha buscat de forma individual a WoS per tal de trobar totes les variants possibles del seu nom. La cerca inclou 319 membres del PDI, actius durant el període 2012-2021, a partir de la relació de persones facilitades per l'Escola.

Cal remarcar que la manca de normalització en els noms dels autors pot haver exclòs de l'equació de cerca formes alternatives, no indexades per WoS.

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<sup>2</sup> La llista de revistes ha estat actualitzada respecte als títols analitzats en les anteriors edicions de l'estudi.



#### **4. Anàlisi de citacions rebudes**

Les citacions rebudes constitueixen un indicador usat de forma comuna tant als estudis bibliomètrics com en la mesura de l'impacte de l'activitat de recerca.

Les dades s'han extret directament de WoS, fent servir la utilitat *Analyze Results*, que elabora rànquings d'autors amb més quantitat de publicació, títols de revista on més es publica, etc., i la utilitat *Citation Report*, que genera un recompte de citacions en dos gràfics: un per a la quantitat d'articles publicats per any, i un per al nombre de vegades que aquests articles han estat citats.

Al costat de les dades corresponents al nombre de cites rebudes per cada institució, s'inclou l'índex  $H^3$  de tot el conjunt d'articles publicats durant el període estudiat. Es proporcionen també els índex H del primer i de l'últim any d'aquest període.

#### **5. Articles més citats de cada universitat i revistes on més publiquen**

Les dades recollides en aquests dos apartats han estat extretes de WoS a través de la utilitat *Analyze Results*.

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<sup>3</sup> L'índex H és un indicador creat per Jorge Hirsch, de la Universitat de Califòrnia - San Diego determina el balanç entre les publicacions d'un científic o institució i la quantitat de citacions que aquestes publicacions reben.



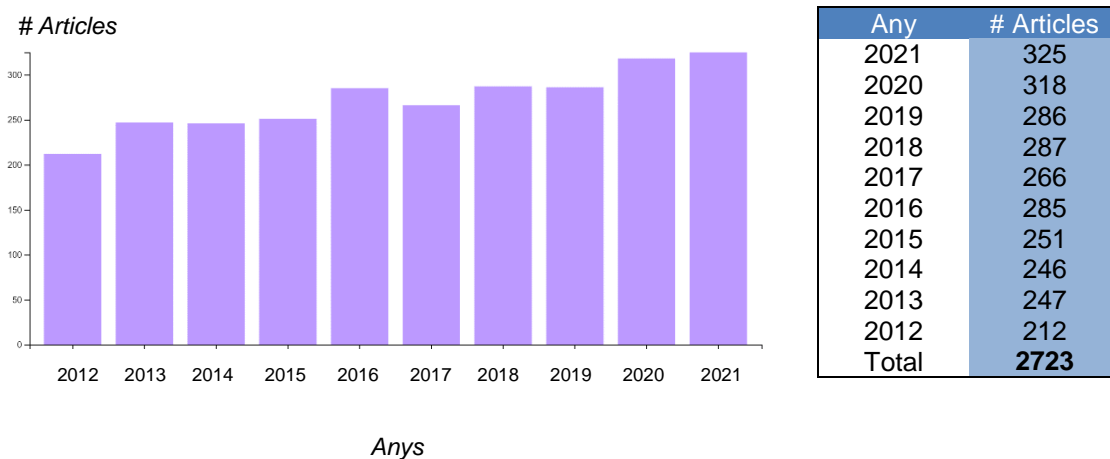
## 1. Gràfics i dades d'articles publicats

Es recull a continuació el nombre d'articles publicats per cada institució en els 7 àmbits temàtics analitzats entre 2012 i 2021, en total i any a any, així com un gràfic comparatiu d'aquesta dada a nivell de totes les institucions.

### 1.1. Gràfics i dades d'articles publicats per universitats<sup>4</sup>

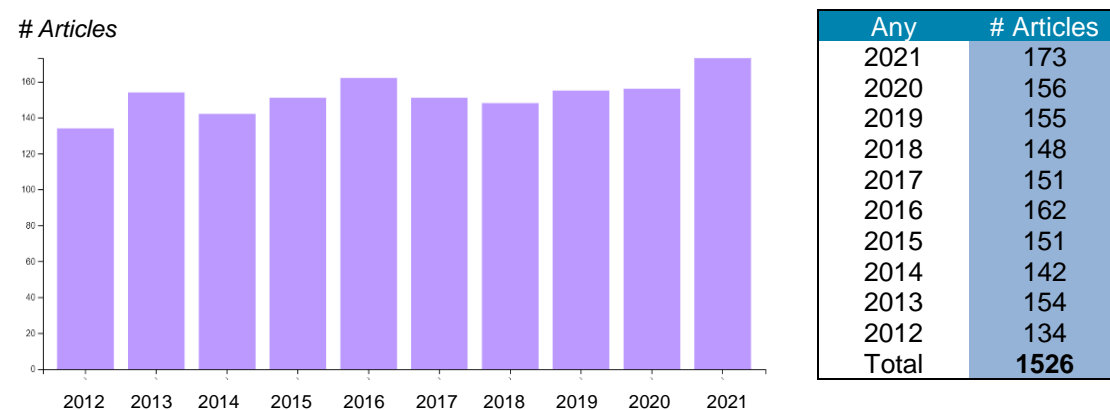
#### 1.1.1. UPC - Universitat Politècnica de Catalunya

Total d'articles publicats: **2723**



#### 1.1.1.1. Escola de Camins

Total d'articles publicats: **1526**

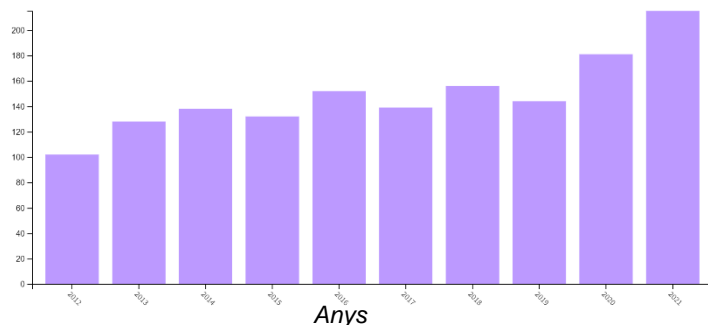


<sup>4</sup> Bases de dades consultades durant el mes d'octubre de 2022.



### 1.1.2. EPFL – École Polytechnique Fédérale de Lausanne

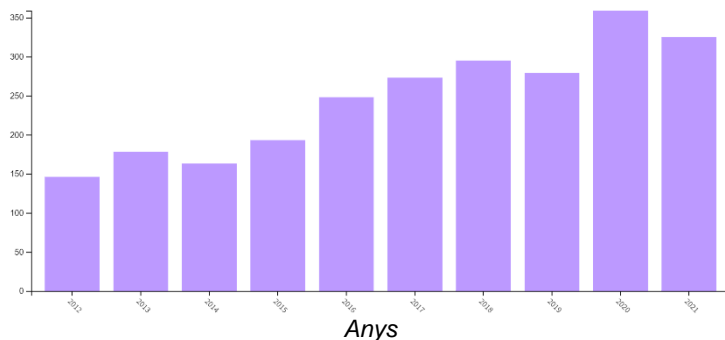
# Articles



Total d'articles publicats:  
1487

### 1.1.3. Imperial College London

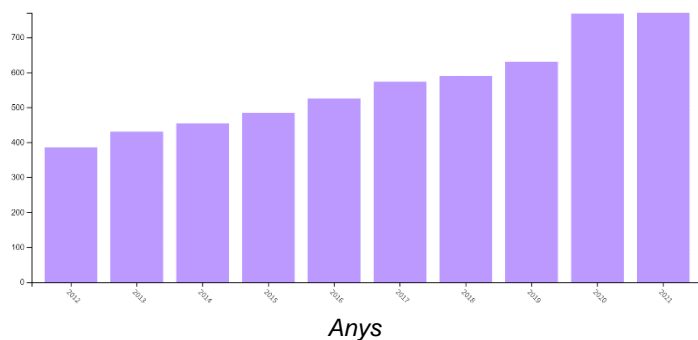
# Articles



Total d'articles publicats: 2459

### 1.1.4. TUDelft - Technische Universiteit Delft

# Articles



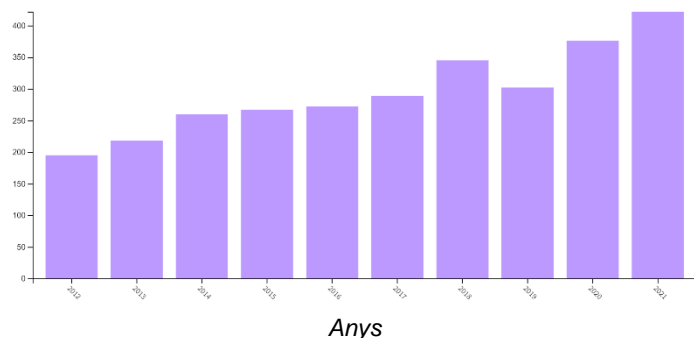
Total d'articles publicats: 5609





### 1.1.5. ETHZ – Swiss Federal Institute of Technology Zurich

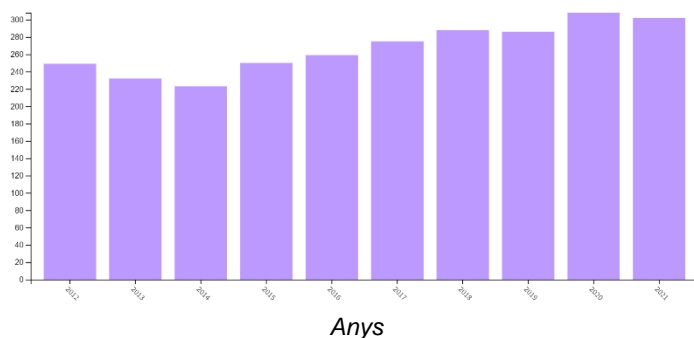
# Articles



Total d'articles publicats: 2946

### 1.1.6. École des Ponts ParisTech – (ENPC / LCPC / IFSSTAR / Univ Gustave-Eiffel –/ Laboratoire Central des Ponts et Chaussées / Institut français des sciences et technologies des transports, de l'aménagement et des réseaux / Université Gustave-Eiffel)<sup>5</sup>

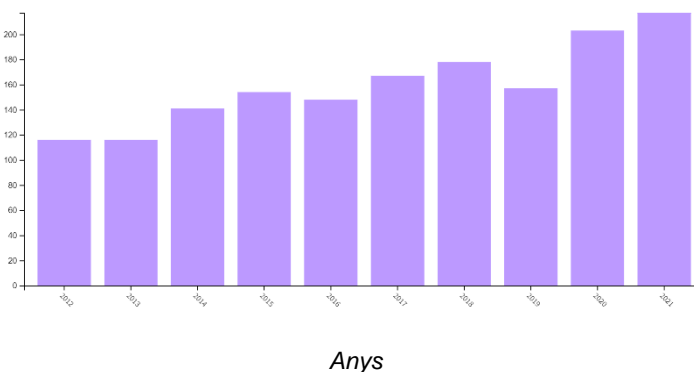
# Articles



Total d'articles publicats: 2673

### 1.1.7. Stanford University

# Articles



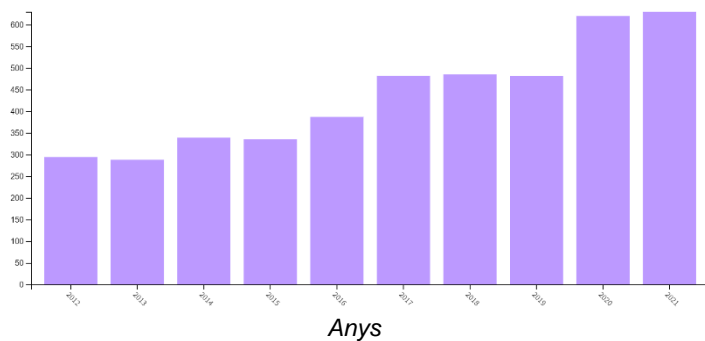
Total d'articles publicats: 1547

<sup>5</sup>. - S'ha fet una cerca conjunta agrupant els principals centres de recerca francesos en l'àmbit de l'enginyeria civil. El nom *École des Ponts ParisTech* correspon a l'*École Nationale des Ponts et Chaussées* que ha canviat de nom recentment. L'IFSSTAR és el nom que rep l'antic *Laboratoire central des ponts et chaussées (LCPC)* des de l'any 2011 fins a la seva dissolució en 2020 i posterior integració a la *Université Gustave-Eiffel*.



### 1.1.8. TAMU – Texas A&M University

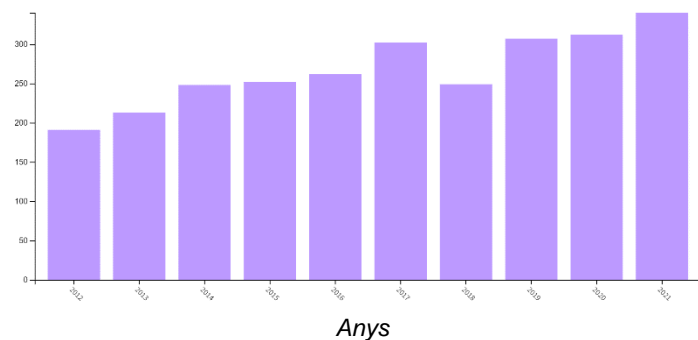
# Articles



Total d'articles publicats: 4340

### 1.1.9. University of Illinois Urbana-Champaign

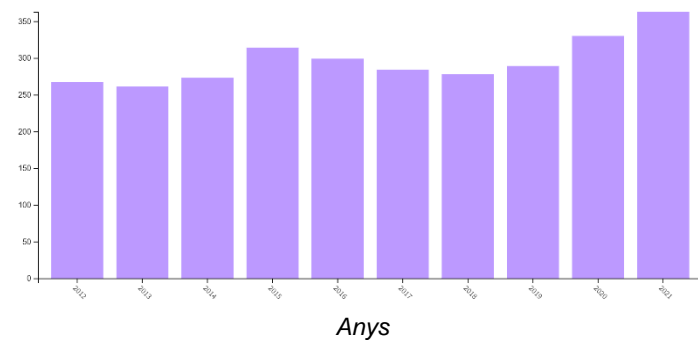
# Articles



Total d'articles publicats: 2676

### 1.1.10. University of California Berkeley

# Articles

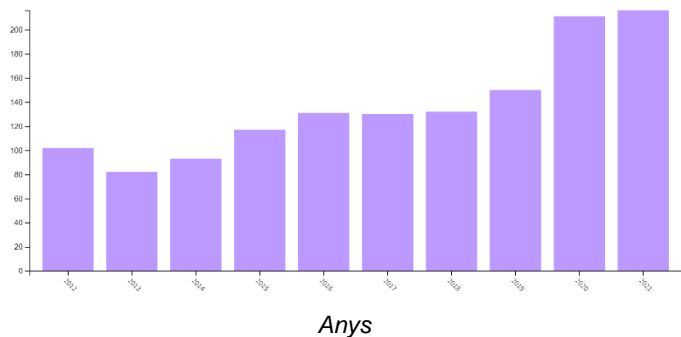


Total d'articles publicats: 2958



### 1.1.11. UNAM - Universidad Nacional Autónoma de México

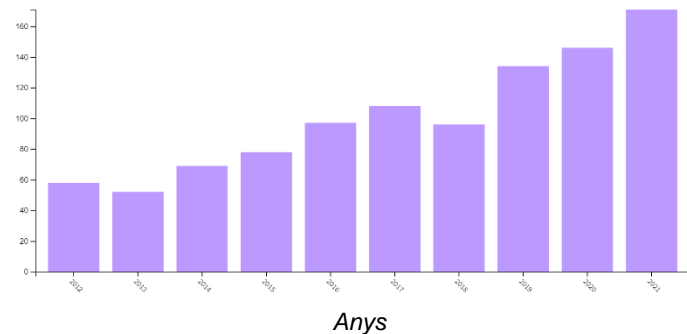
# Articles



Total d'articles publicats:  
1364

### 1.1.12. UFRJ – Universidade Federal do Rio de Janeiro

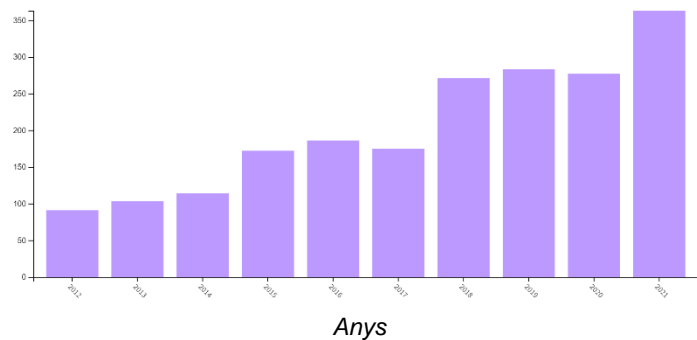
# Articles



Total d'articles publicats: 1009

### 1.1.13. USP - Universidade de São Paulo

# Articles

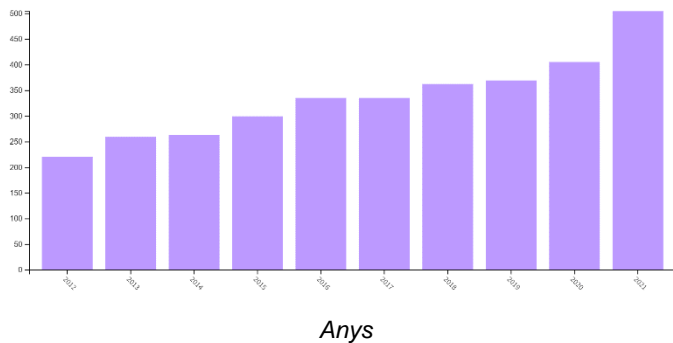


Total d'articles publicats: 2035



### 1.1.14.ULisboa – Universidade de Lisboa / Universidade Técnica de Lisboa<sup>6</sup>

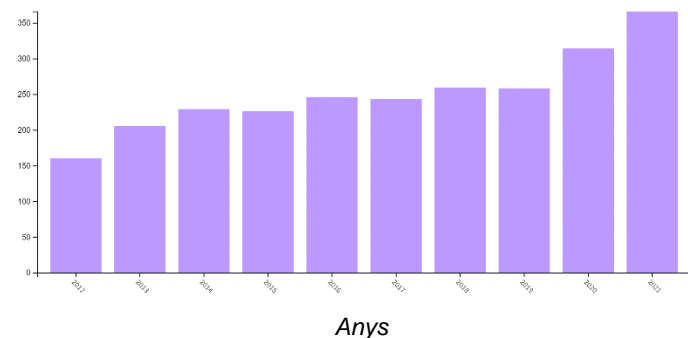
# Articles



Total d'articles publicats:  
3351

### 1.1.15.UPM - Universidad Politécnica de Madrid

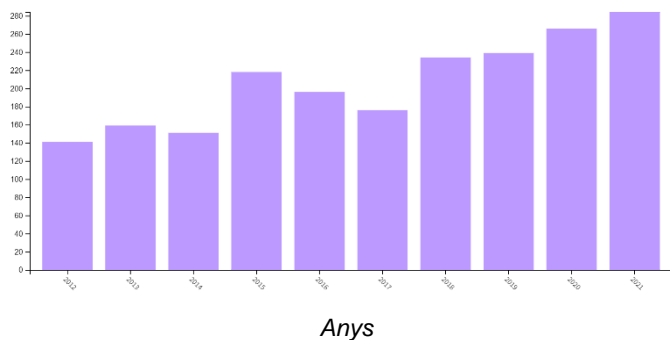
# Articles



Total d'articles publicats: 2506

### 1.1.16.UPV - Universitat Politècnica de València

# Articles



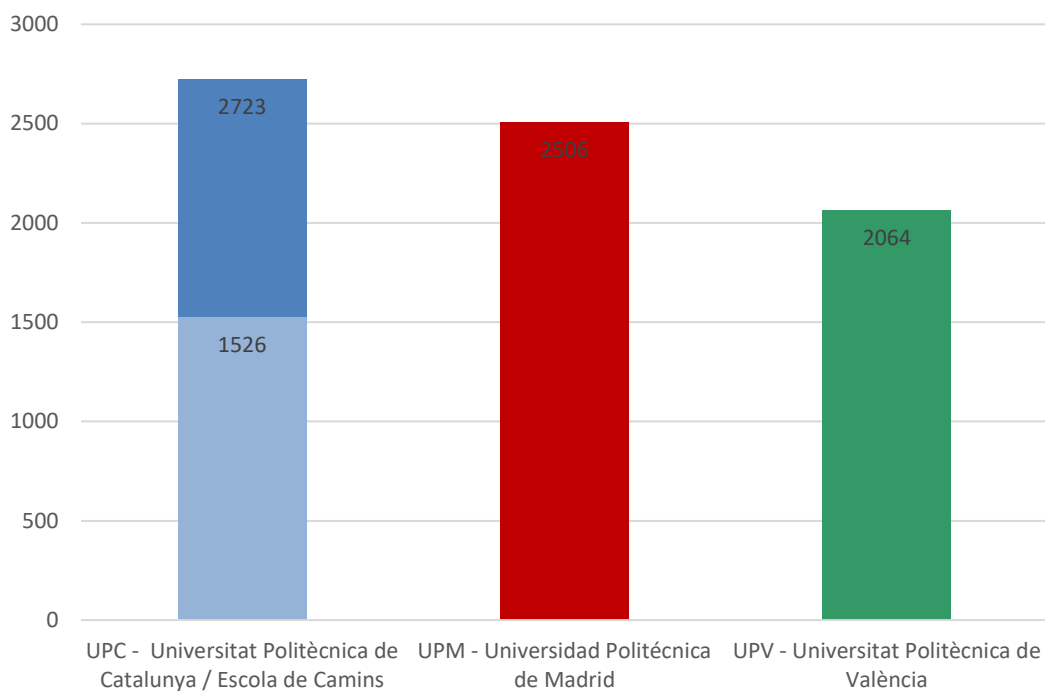
Total d'articles publicats: 2064

<sup>6</sup> Al 2013 la Universidade Técnica de Lisboa s'integra a la Universidade de Lisboa. La cerca s'ha fet considerant els noms de les dues entitats i també la del Instituto Superior Técnico.

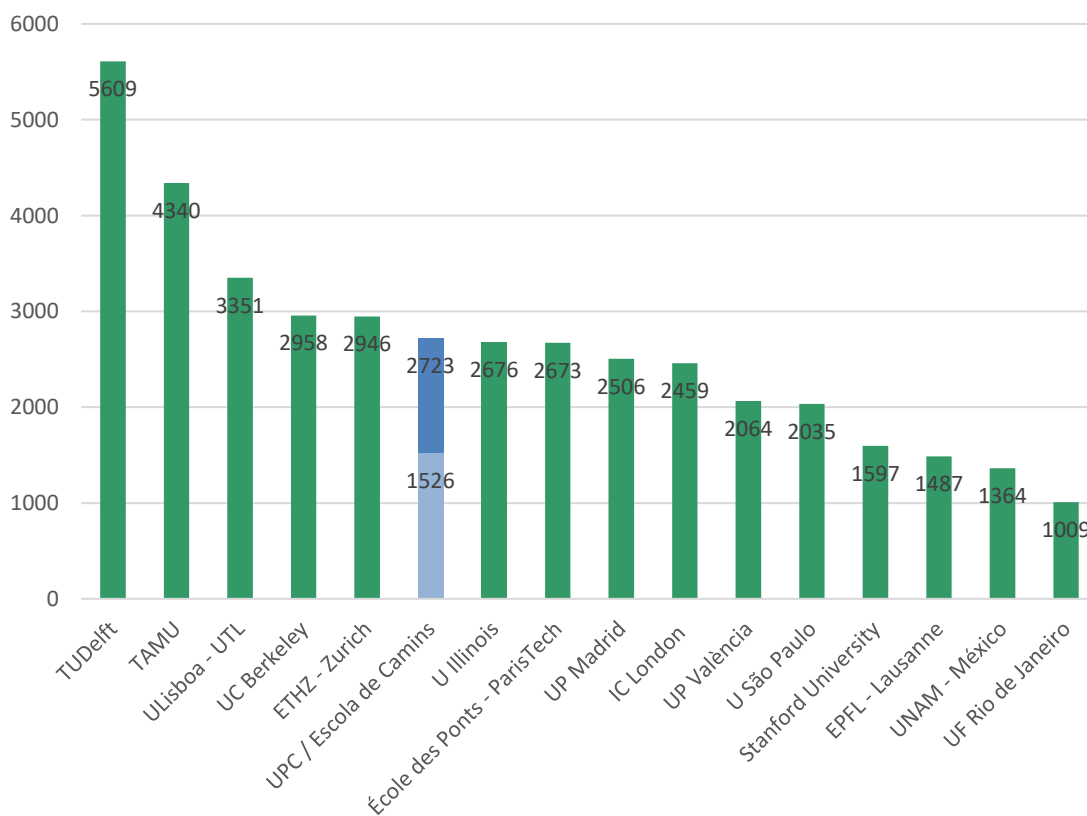


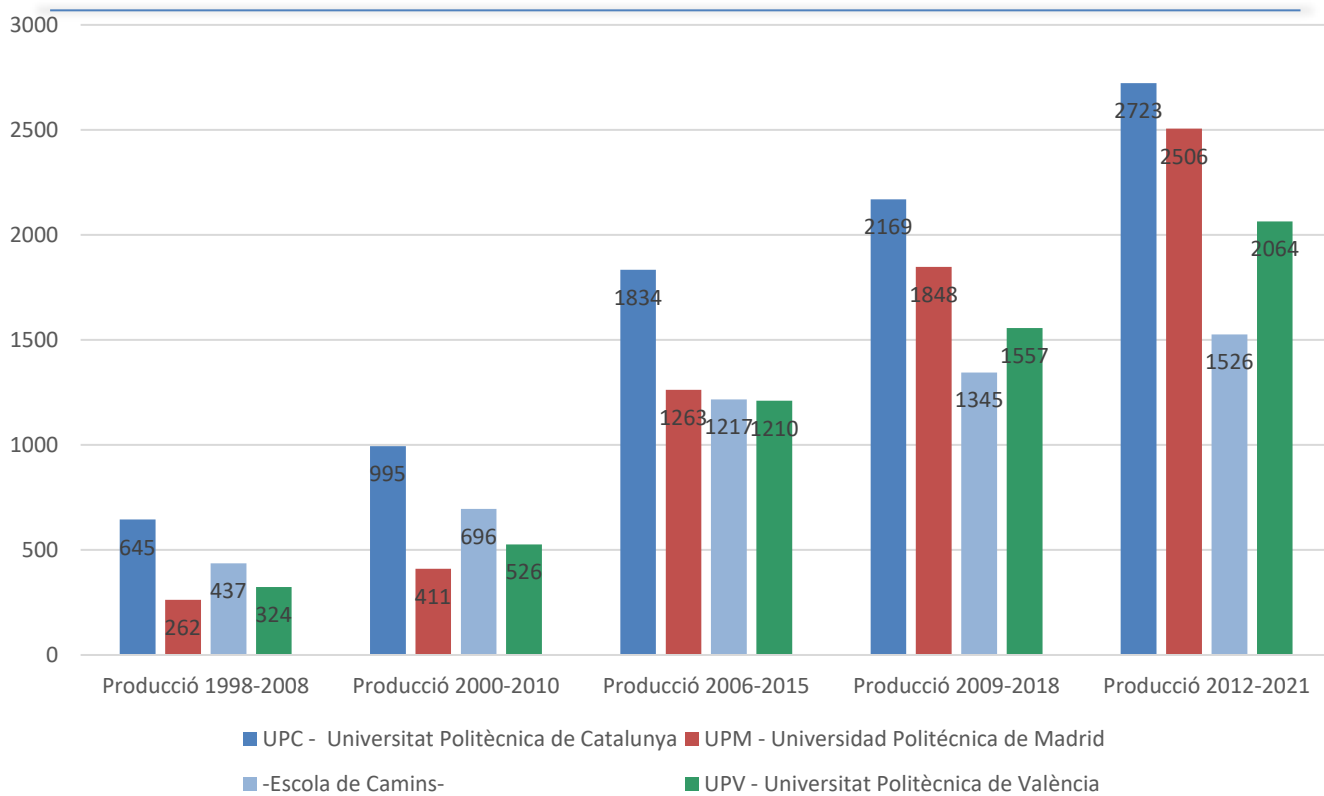
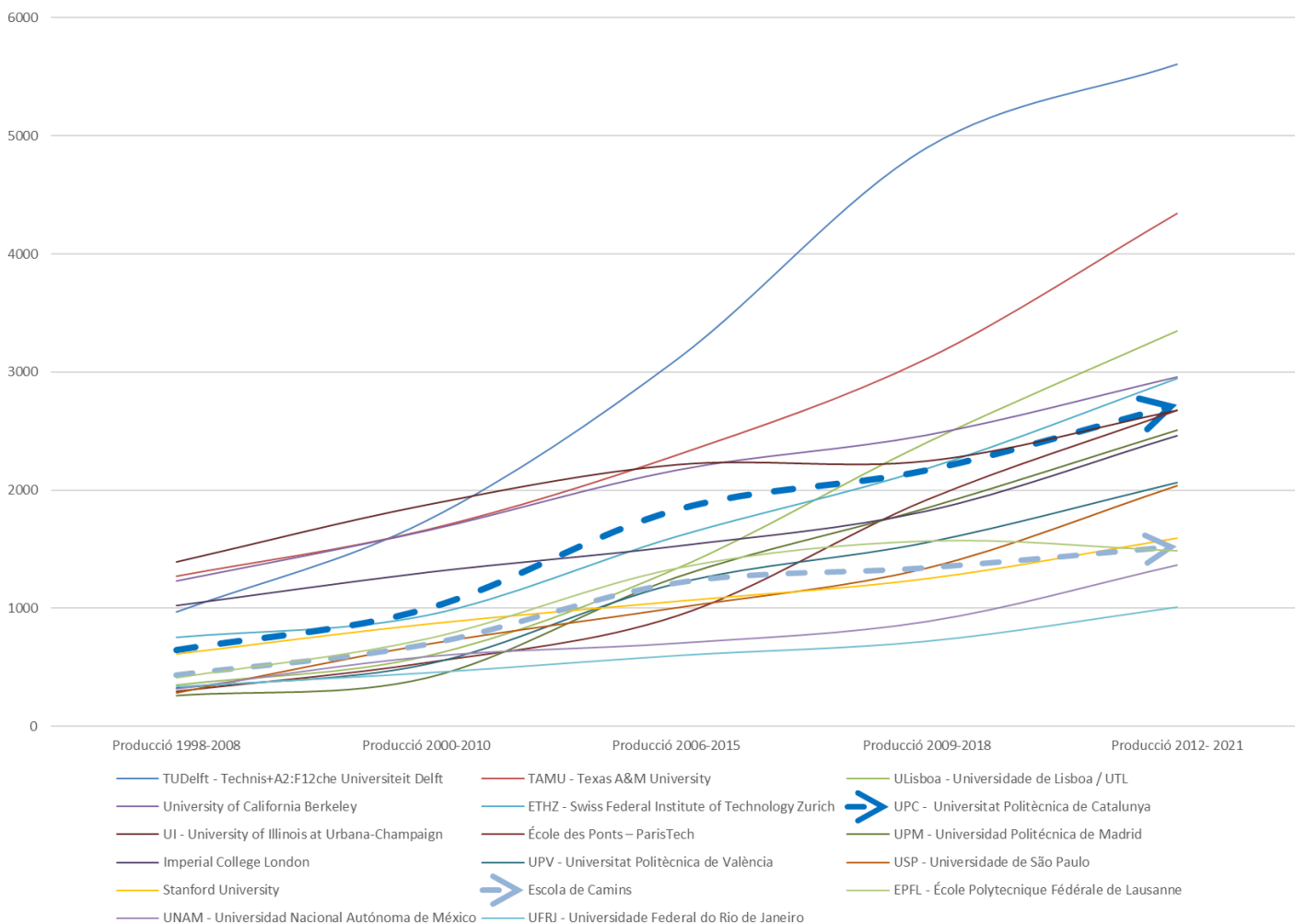
## 1.2. Gràfics i taula comparatius de quantitat de publicació científica

### 1.2.1. Gràfic UPC vs. UPM i UPV 2012-2021



### 1.2.2. Gràfics i taula globals 2012-2021







Institució	Producció 1998-2008	Producció 2000-2010	Producció 2006-2015	Producció 2009-2018	Producció 2012-2021	Variació producció	Posició actual
TU Delft - Technische Universiteit Delft	967	1741	3106	4902	5609	14,42%	1 ↔
TAMU - Texas A&M University	1274	1666	2298	3113	4340	39,42%	2 ↔
ULisboa - Universidade de Lisboa / UTL	349	594	1337	2406	3351	39,28%	3 ↑
University of California Berkeley	1230	1656	2169	2466	2958	19,95%	4 ↓
ETHZ - Swiss Federal Institute of Technology Zurich	753	939	1608	2183	2946	34,95%	5 ↑
UPC - Universitat Politècnica de Catalunya	645	995	1834	2169	2723	25,54%	6 ↑
UI - University of Illinois at Urbana-Champaign	1390	1874	2215	2246	2676	19,15%	7 ↓
École des Ponts – ParisTech	294	537	932	1916	2673	39,51%	8 ↔
UPM - Universidad Politécnica de Madrid	262	411	1263	1848	2506	35,61%	9 ↔
Imperial College London	1025	1305	1527	1824	2459	34,81%	10 ↔
UPV - Universitat Politècnica de València	324	526	1210	1557	2064	32,56%	11 ↑
USP - Universidade de São Paulo	286	696	1005	1340	2035	51,87%	12 ↑
Stanford University	616	869	1062	1254	1597	27,35%	13 ↑
<b>-Escola de Camins-</b>	<b>437</b>	<b>696</b>	<b>1217</b>	<b>1345</b>	1526	13,46%	<b>-14-</b> ↓
EPFL - École Polytechnique Fédérale de Lausanne	410	740	1339	1570	1487	-5,29%	15 ↓
UNAM - Universidad Nacional Autónoma de México	317	590	703	887	1364	53,78%	16 ↔
UFRJ - Universidade Federal do Rio de Janeiro	335	451	598	720	1009	40,14%	17 ↔



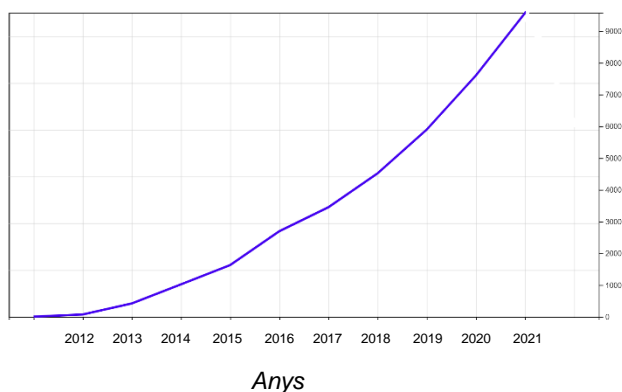
## 2. Gràfics i dades de citacions rebudes

Es detalla aquí el nombre de referències rebudes pels articles publicats per cada institució entre 2012 i 2021, així com altres dades d'interès -mitjana de citacions per ítem i índex H-. També s'inclou el gràfic comparatiu d'aquestes dades a nivell de totes les institucions i la comparació d'àmbit estatal UPC vs. UPM i UPV.

### 2.1. Gràfics i dades de citacions rebudes per universitats<sup>7</sup>

#### 2.1.1. UPC - Universitat Politècnica de Catalunya

# Citacions



Total d'articles publicats: 2723

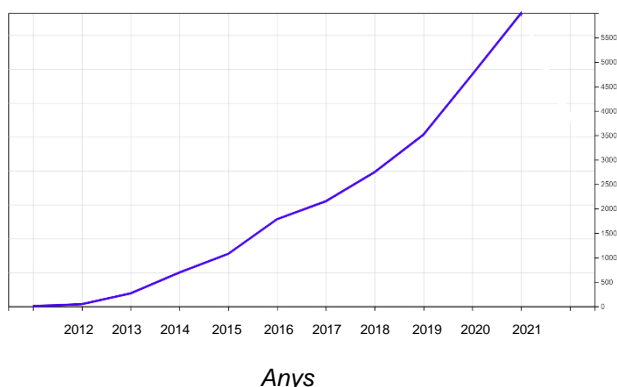
Quantitat de citacions rebudes:  
42988

Mitjana de citacions per ítem<sup>8</sup>:  
15,79

Índex H període 2012-2021: 70

#### 2.1.1.1. Escola de Camins

# Citacions



Total d'articles publicats: 1526

Quantitat de citacions rebudes:  
26788

Mitjana de citacions per ítem:  
17,55

Índex H període 2012-2021: 62

<sup>7</sup> Bases de dades consultades durant el mes de novembre de 2019. S'inclouen, per tant, les cites rebudes pels articles durant part del 2022.

<sup>8</sup> La mitjana de citacions de la UPC s'ha obtingut obviant els articles i citacions corresponents a l'Escola de Camins.

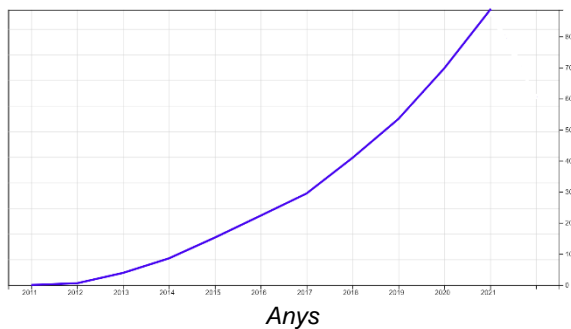




0

## 2.1.2. EPFL – École Polytechnique Fédérale de Lausanne

# Citacions



Total d'articles publicats: 1487

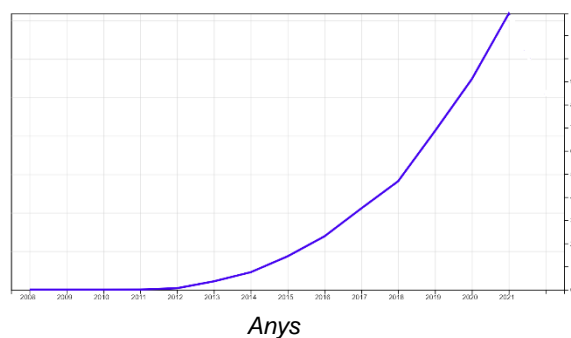
Quantitat de citacions rebudes:  
39222

Mitjana de citacions per ítem: 26,38

Índex H període 2012-2021: 87

## 2.1.3. Imperial College London

# Citacions



Total d'articles publicats: 2459

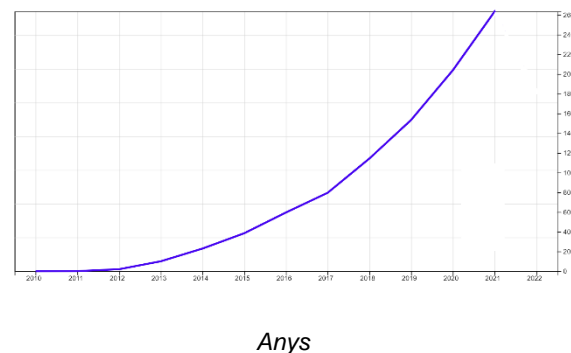
Quantitat de citacions rebudes: 49518

Mitjana de citacions per ítem: 20,14

Índex H període 2012-2021: 82

## 2.1.4. TUDelft - Technische Universiteit Delft

# Citacions



Total d'articles publicats: 5609

Quantitat de citacions rebudes:  
112808

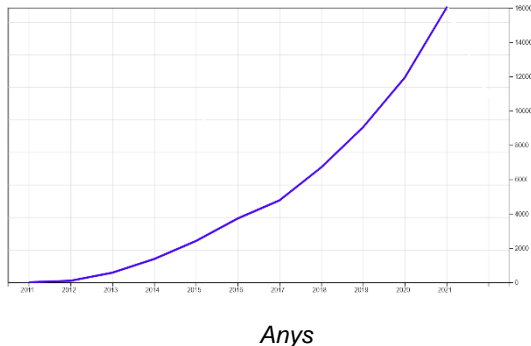
Mitjana de citacions per ítem: 20,11

Índex H: període 2012-2021: 112



### 2.1.5. ETHZ – Swiss Federal Institute of Technology Zurich

# Citacions



Total d'articles publicats: 2946

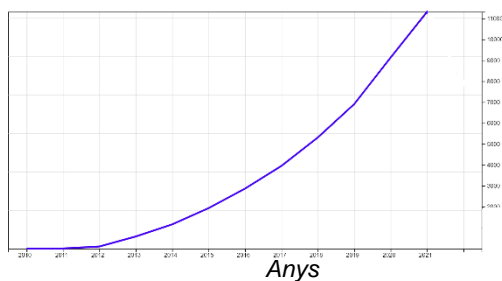
Quantitat de citacions rebudes: 67498

Mitjana de citacions per ítem: 22,91

Índex H període 2012-2021: 98

### 2.1.6. École des Ponts ParisTech – (ENPC / LCPC / IFSSTAR / Univ Gustave-Eiffel –/ Laboratoire Central des Ponts et Chaussées / Institut français des sciences et technologies des transports, de l'aménagement et des réseaux / Université Gustave-Eiffel)

# Citacions



Total d'articles publicats: 2673

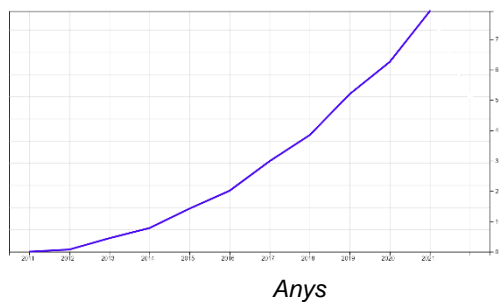
Quantitat de citacions rebudes: 51082

Mitjana de citacions per ítem: 19,11

Índex H període 2012-2021: 83

### 2.1.7. Stanford University

# Citacions



Total d'articles publicats: 1597

Quantitat de citacions rebudes: 36045

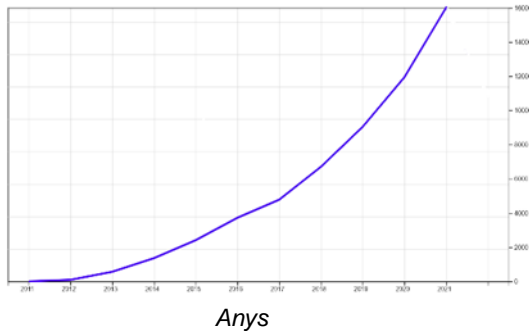
Mitjana de citacions per ítem: 22,57

Índex H període 2012-2021: 78



## 2.1.8. TAMU - Texas A&M University

# Citacions



Total d'articles publicats: 4340

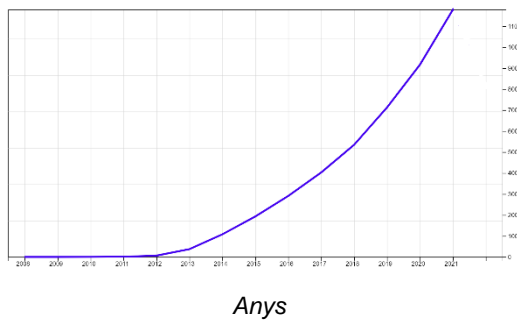
Quantitat de citacions rebudes: 69695

Mitjana de citacions per ítem: 16,06

Índex H període 2012-2021: 88

## 2.1.9. UI - University of Illinois

# Citacions



Total d'articles publicats: 2676

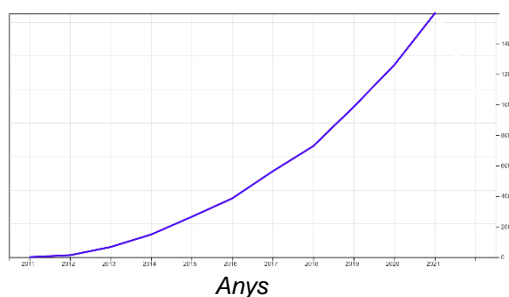
Quantitat de citacions rebudes: 51956

Mitjana de citacions per ítem: 19,42

Índex H període 2012-2021: 84

## 2.1.10. University of California Berkeley

# Citacions



Total d'articles publicats: 2958

Quantitat de citacions rebudes: 70980

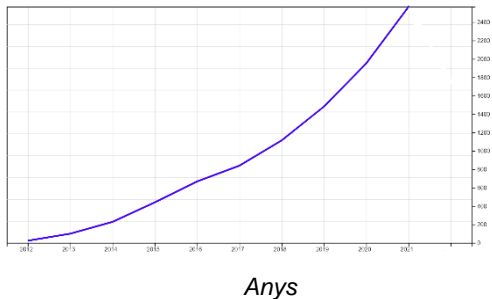
Mitjana de citacions per ítem: 24

Índex H període 2012-2021: 101



### 2.1.11. UNAM – Universidad Nacional Autónoma de México

# Citacions



Total d'articles publicats: 1364

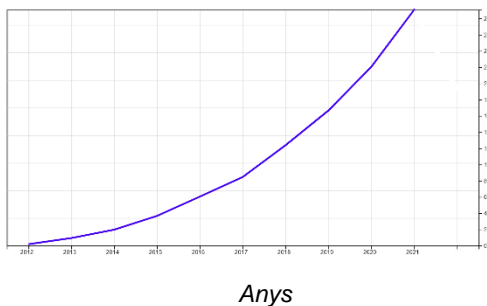
Quantitat de citacions rebudes: 11149

Mitjana de citacions per ítem: 8,17

Índex H període 2012-2021: 38

### 2.1.12. UFRJ – Universidade Federal do Rio de Janeiro

# Citacions



Total d'articles publicats: 1009

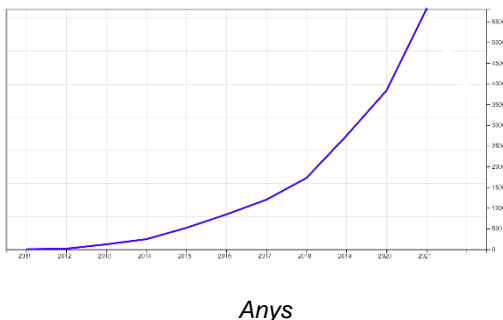
Quantitat de citacions rebudes: 12077

Mitjana de citacions per ítem: 11,97

Índex H període 2012-2021: 48

### 2.1.13. USP - Universidade de São Paulo

# Citacions



Total d'articles publicats: 2035

Quantitat de citacions rebudes: 20944

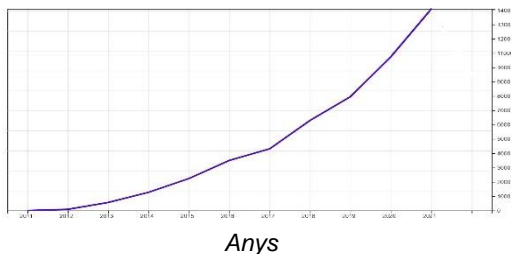
Mitjana de citacions per ítem: 11,29

Índex H període 2012-2021: 48



### 2.1.14. ULisboa – Universidade de Lisboa / Universidade Técnica de Lisboa

# Citacions



Total d'articles publicats: 3351

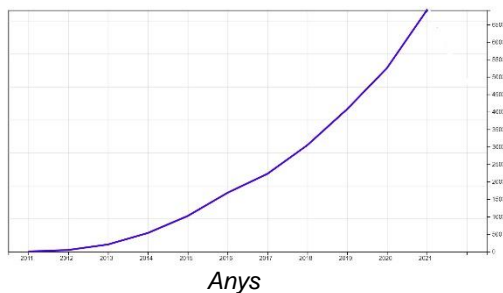
Quantitat de citacions rebudes: 60.548

Mitjana de citacions per ítem: 18,07

Índex H període 2012-2021: 86

### 2.1.15. UPM - Universidad Politécnica de Madrid

# Citacions



Total d'articles publicats: 2506

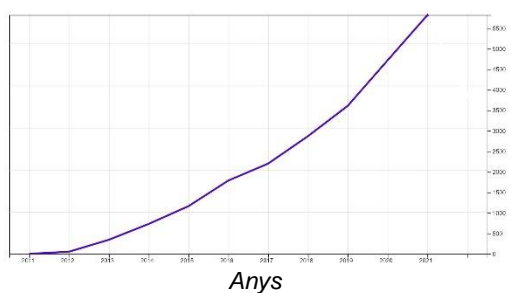
Quantitat de citacions rebudes: 29803

Mitjana de citacions per ítem: 11,89

Índex H període 2012-2021: 62

### 2.1.16. UPV - Universitat Politècnica de València

# Citacions



Total d'articles publicats: 2064

Quantitat de citacions rebudes: 27176

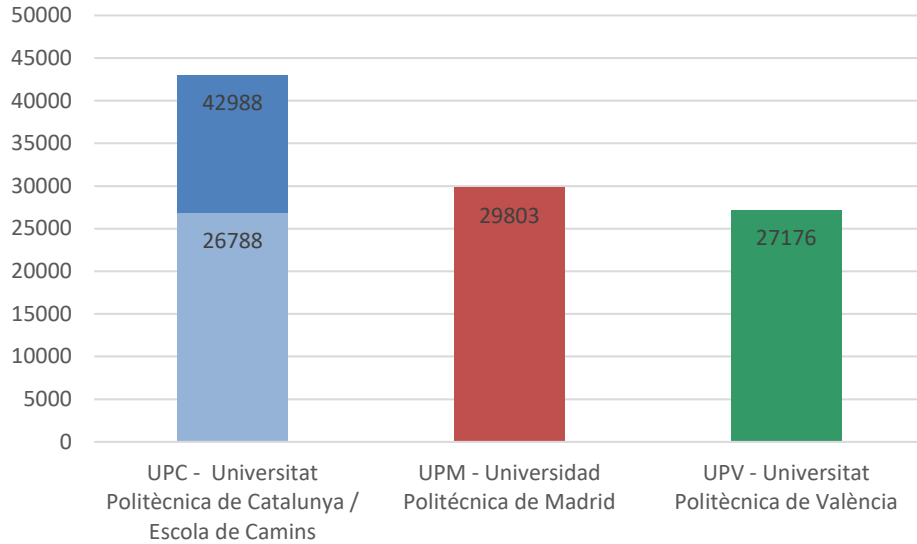
Mitjana de citacions per ítem: 13,17

Índex H període 2012-2021: 60

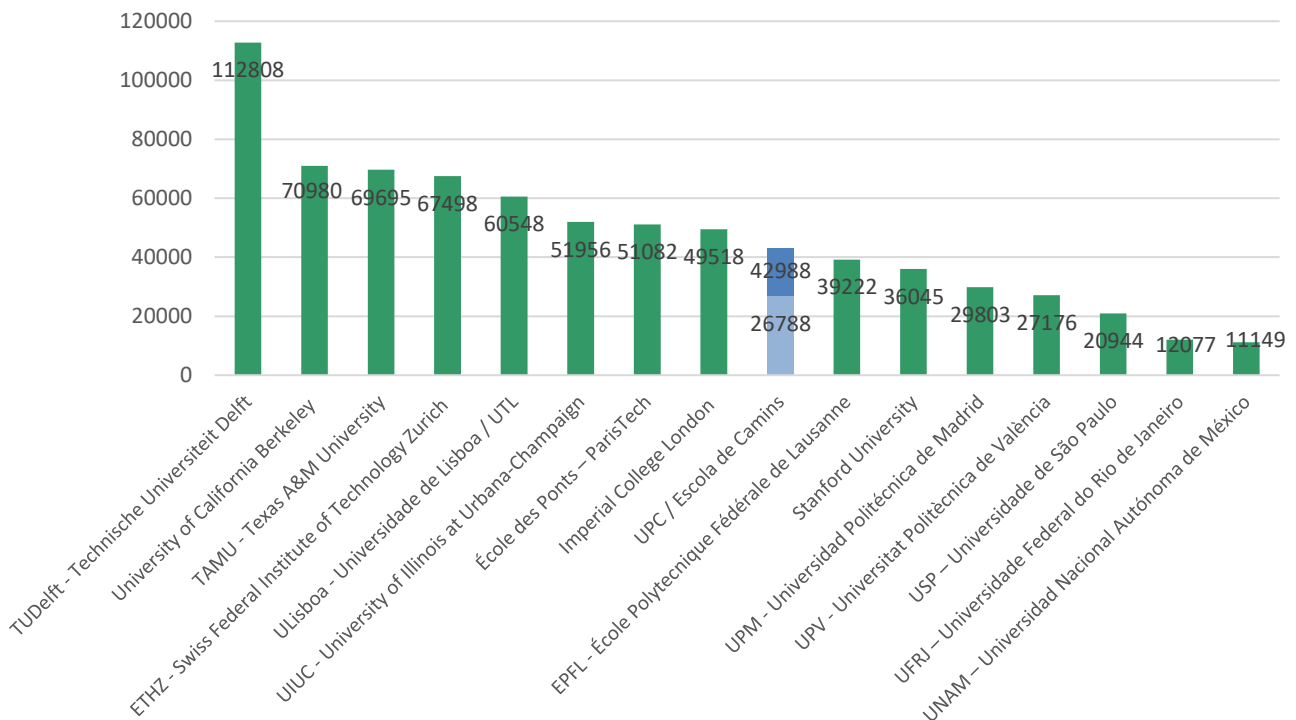


## 2.2. Gràfics i taula comparatius de les citacions a la publicació científica<sup>9</sup>

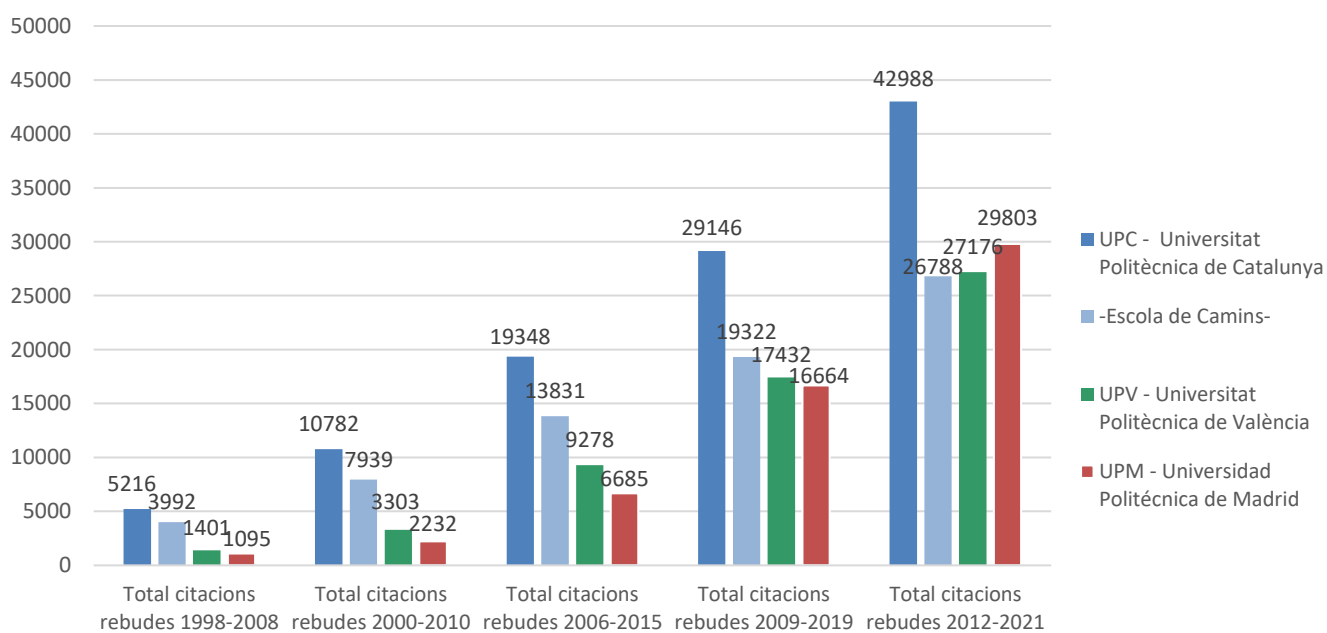
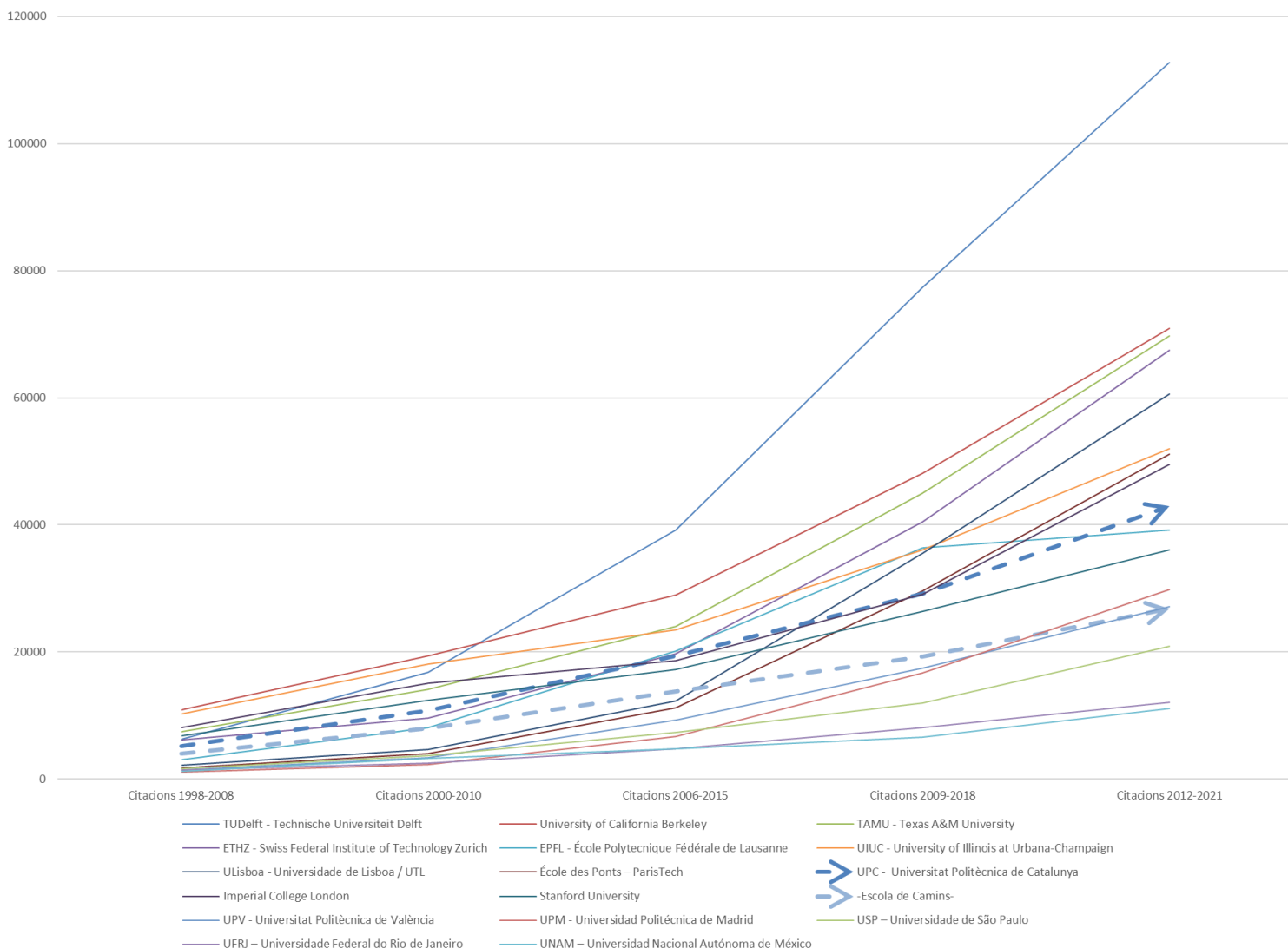
### 2.2.1. Gràfic UPC vs. UPM i UPV 2012-2021



### 2.2.2. Gràfics i taula globals 2012-2021



<sup>9</sup> Bases de dades consultades a l'octubre de 2022. S'inclouen, per tant, les cites rebudes pels articles durant part del 2022.





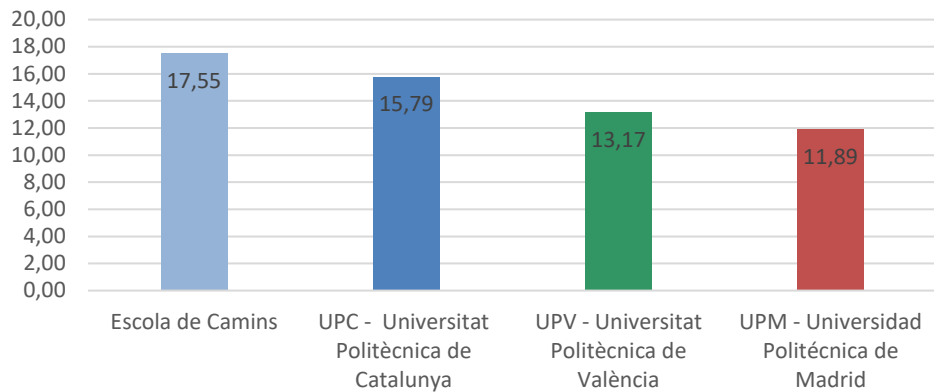
Institució	Total citacions rebudes 1998-2008	Total citacions rebudes 2000-2010	Total citacions rebudes 2006-2015	Total citacions rebudes 2009-2018	Total citacions rebudes 2012-2021	Variació citacions	Posició actual
TU Delft - Technische Universiteit Delft	6249	16850	39194	77379	112808	45,79%	1 ↔
University of California Berkeley	10884	19340	28911	48075	70980	47,64%	2 ↔
TAMU - Texas A&M University	7441	14078	23962	44994	69695	54,90%	3 ↔
ETHZ - Swiss Federal Institute of Technology Zurich	6131	9631	19712	40492	67498	66,69%	4 ↔
ULisboa - Universidade de Lisboa / UTL	2154	4613	12288	35513	60548	70,50%	5 ↑
UIUC - University of Illinois at Urbana-Champaign	10274	18084	23480	36022	51956	44,23%	6 ↔
École des Ponts – ParisTech	1742	3997	11249	29602	51082	72,56%	7 ↑
Imperial College London	8121	15123	18674	29109	49518	70,11%	8 ↑
UPC - Universitat Politècnica de Catalunya	5216	10782	19348	29146	42988	47,49%	9 ↔
EPFL - École Polytechnique Fédérale de Lausanne	3064	8114	20145	36415	39222	7,71%	10 ↓
Stanford University	6777	12409	17272	26365	36045	36,72%	11 ↓
UPM - Universidad Politécnica de Madrid	1095	2232	6685	16664	29803	78,85%	12 ↑
UPV - Universitat Politècnica de València	1401	3303	9278	17432	27176	55,90%	13 ↔
<b>-Escola de Camins-</b>	<b>3992</b>	<b>7939</b>	<b>13831</b>	<b>19322</b>	<b>26788</b>	38,64%	<b>14</b> ↔
USP – Universidade de São Paulo	1598	3634	7328	12006	20944	74,45%	15 ↔
UFRJ – Universidade Federal do Rio de Janeiro	1450	2485	4749	8141	12077	48,35%	16 ↔
UNAM – Universidad Nacional Autónoma de México	1256	3226	4770	6616	11149	68,52%	17 ↔





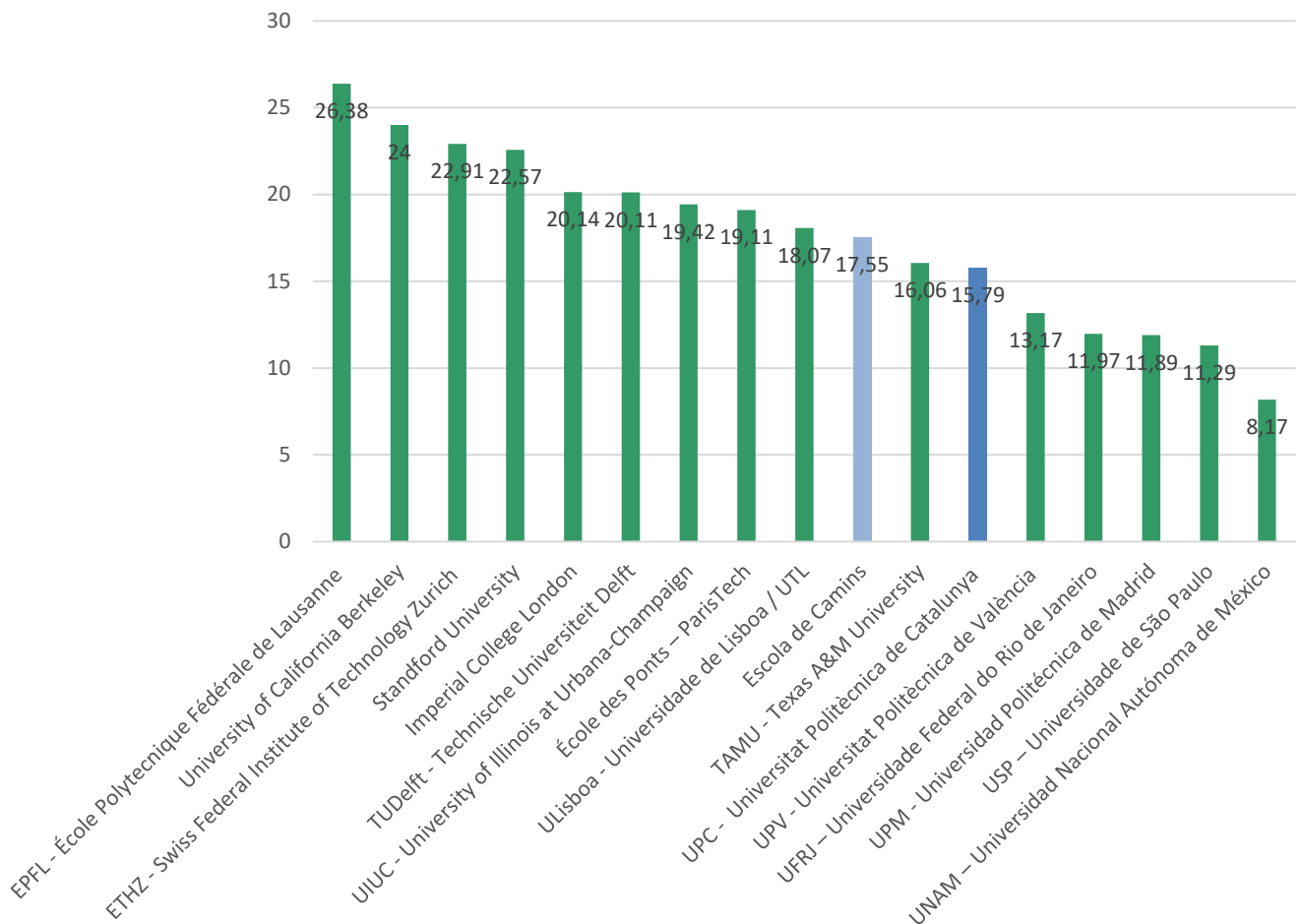
## 2.3. Gràfics i taula comparatius de la mitjana de citacions rebudes

### 2.3.1. Gràfic UPC<sup>10</sup> vs. UPM i UPV 2012-2021

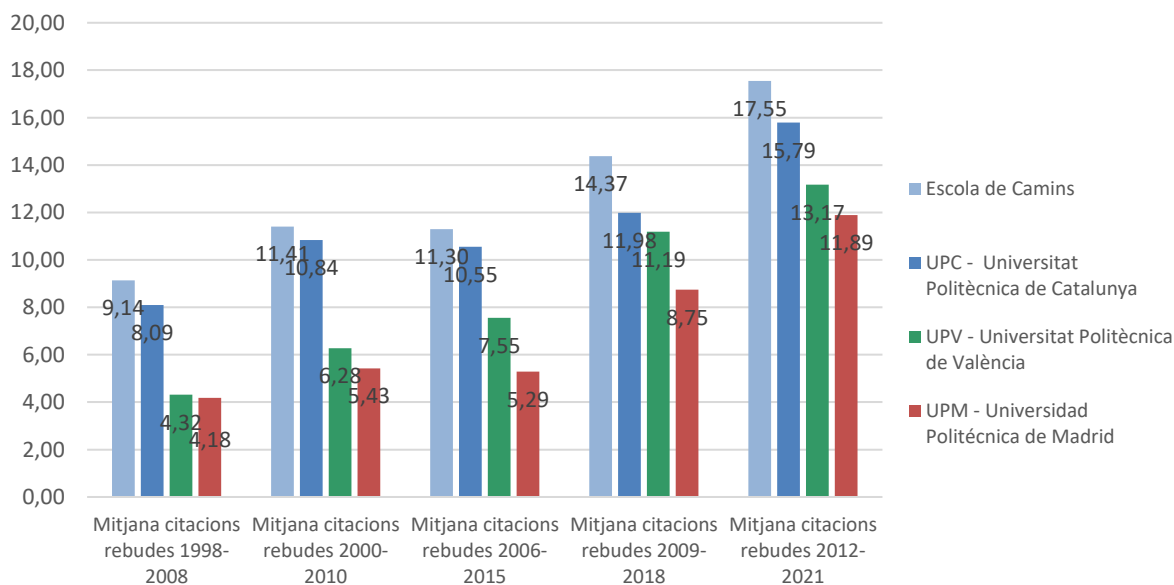
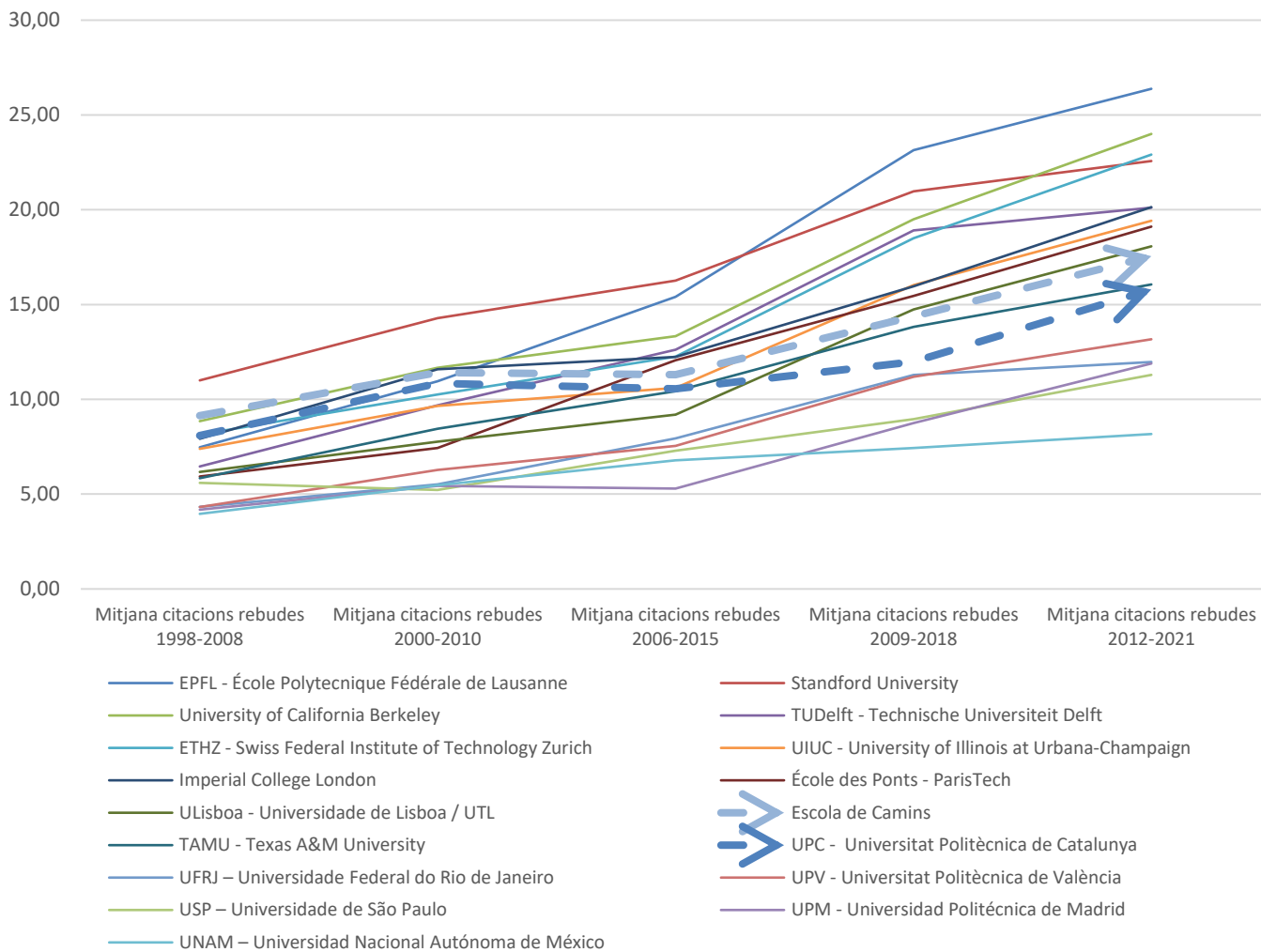


### 2.3.2. Gràfics i taula globals 2012-2021

Per a major claredat en la presentació, en el següent gràfic s'utilitzen dues barres diferents per a la UPC –blau més fosc- i l'Escola de Camins –blau més clar-.



<sup>10</sup> - La mitjana de citacions de la UPC s'ha obtingut obviant els articles i citacions corresponents a l'Escola de Camins.





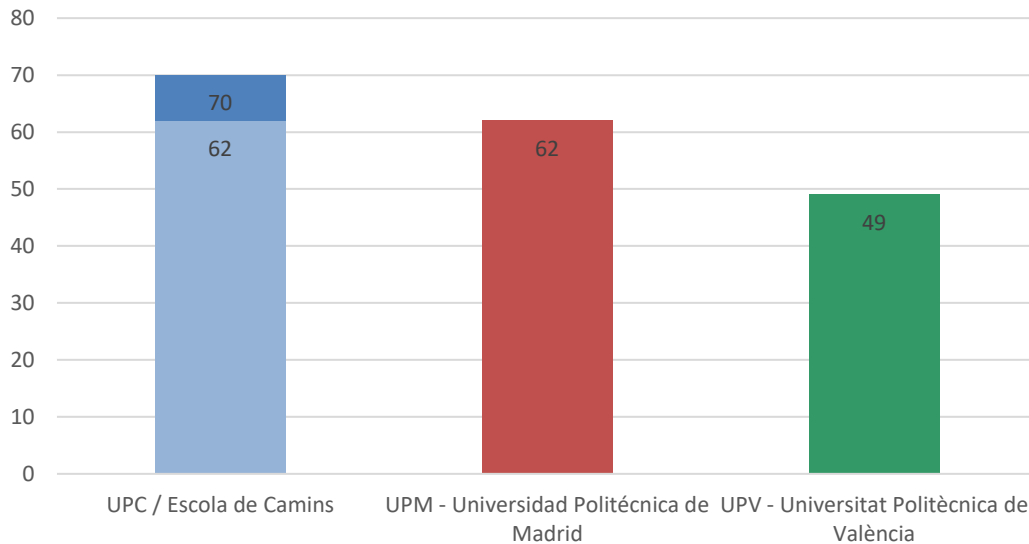
Institució	Mitjana citacions rebudes 1998-2008	Mitjana citacions rebudes 2000-2010	Mitjana citacions rebudes 2006-2015	Mitjana citacions rebudes 2009-2018	Mitjana citacions rebudes 2012-2021	Variació mitjana	Posició actual
EPFL - École Polytechnique Fédérale de Lausanne	7,47	10,96	15,4	23,15	26,38	3,23	1 ↔
University of California Berkeley	8,85	11,67	13,33	19,49	24	4,51	2 ↑
ETHZ - Swiss Federal Institute of Technology Zurich	8,14	10,26	12,26	18,5	22,91	4,41	3 ↑
Standford University	11,00	14,28	16,26	20,97	22,57	1,60	4 ↓
Imperial College London	7,92	11,59	12,23	15,96	20,14	4,18	5 ↑
TU Delft - Technische Universiteit Delft	6,46	9,68	12,62	18,91	20,11	1,20	6 ↓
UIUC - University of Illinois at Urbana-Champaign	7,39	9,65	10,60	16,02	19,42	3,40	7 ↓
École des Ponts – ParisTech	5,93	7,44	12,07	15,46	19,11	3,65	8 ↔
ULisboa - Universidade de Lisboa / UTL	6,17	7,77	9,19	14,74	18,07	3,33	9 ↔
<b>Escola de Camins</b>	<b>9,14</b>	<b>11,41</b>	<b>11,30</b>	<b>14,37</b>	<b>17,55</b>	<b>3,18</b>	<b>10 ↔</b>
TAMU - Texas A&M University	5,84	8,45	10,43	13,82	16,06	2,24	11 ↔
UPC - Universitat Politècnica de Catalunya	8,09	10,84	10,55	11,98	15,79	3,81	12 ↔
UPV - Universitat Politècnica de València	4,32	6,28	7,55	11,19	13,17	1,98	13 ↔
UFRJ – Universidade Federal do Rio de Janeiro	4,33	5,51	7,94	11,29	11,97	0,68	14 ↔
UPM - Universidad Politécnica de Madrid	4,18	5,43	5,29	8,75	11,89	3,14	15 ↔
USP – Universidade de São Paulo	5,59	5,22	7,29	8,95	11,29	2,34	16 ↔
UNAM – Universidad Nacional Autónoma de México	3,96	5,47	6,79	7,44	8,17	0,73	17 ↔



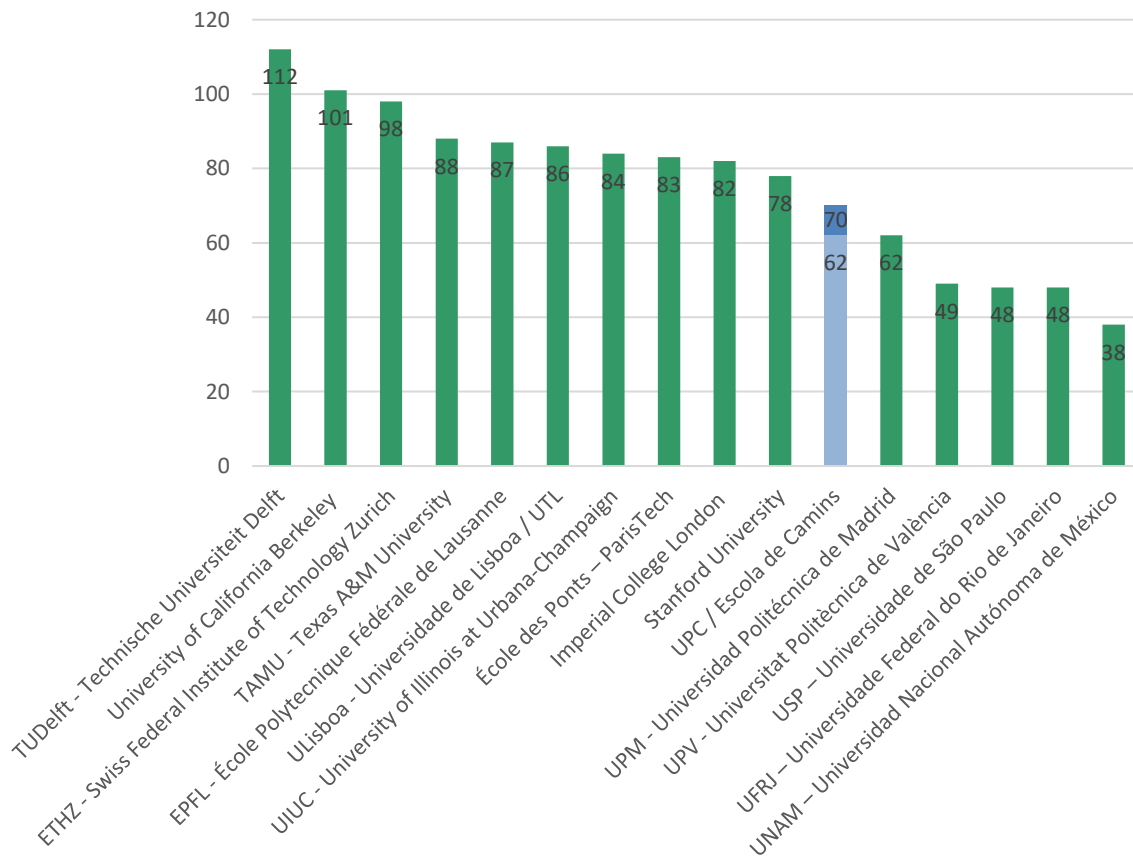
### 3. Gràfic i taula comparatius de l'índex H

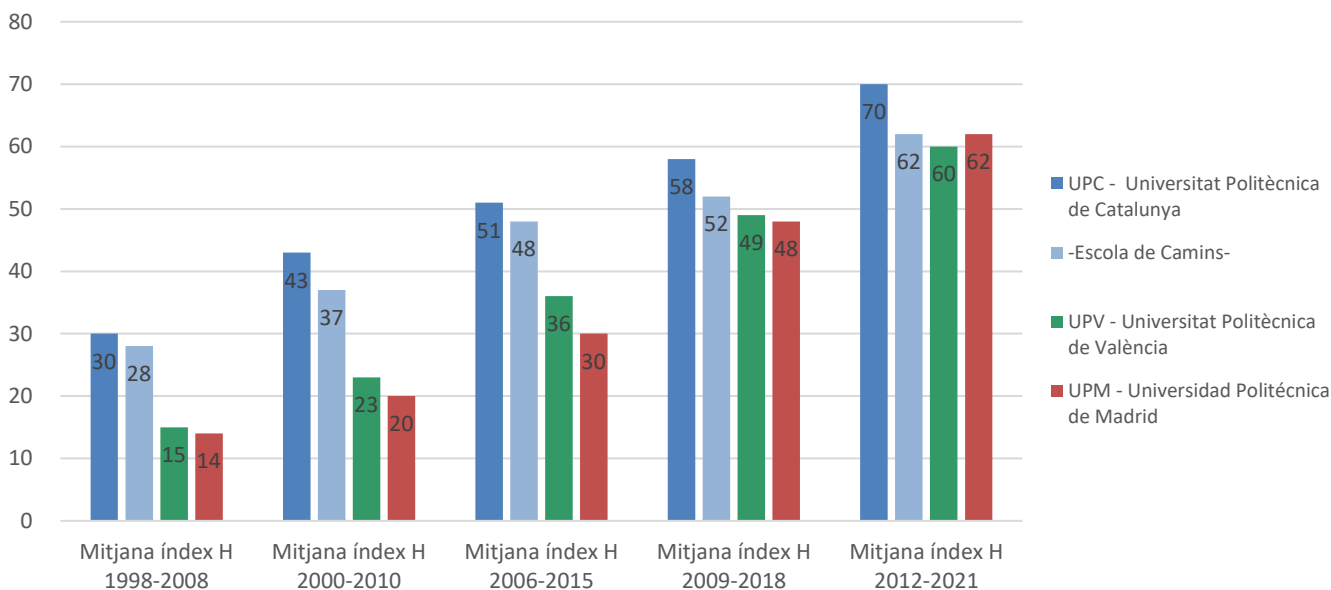
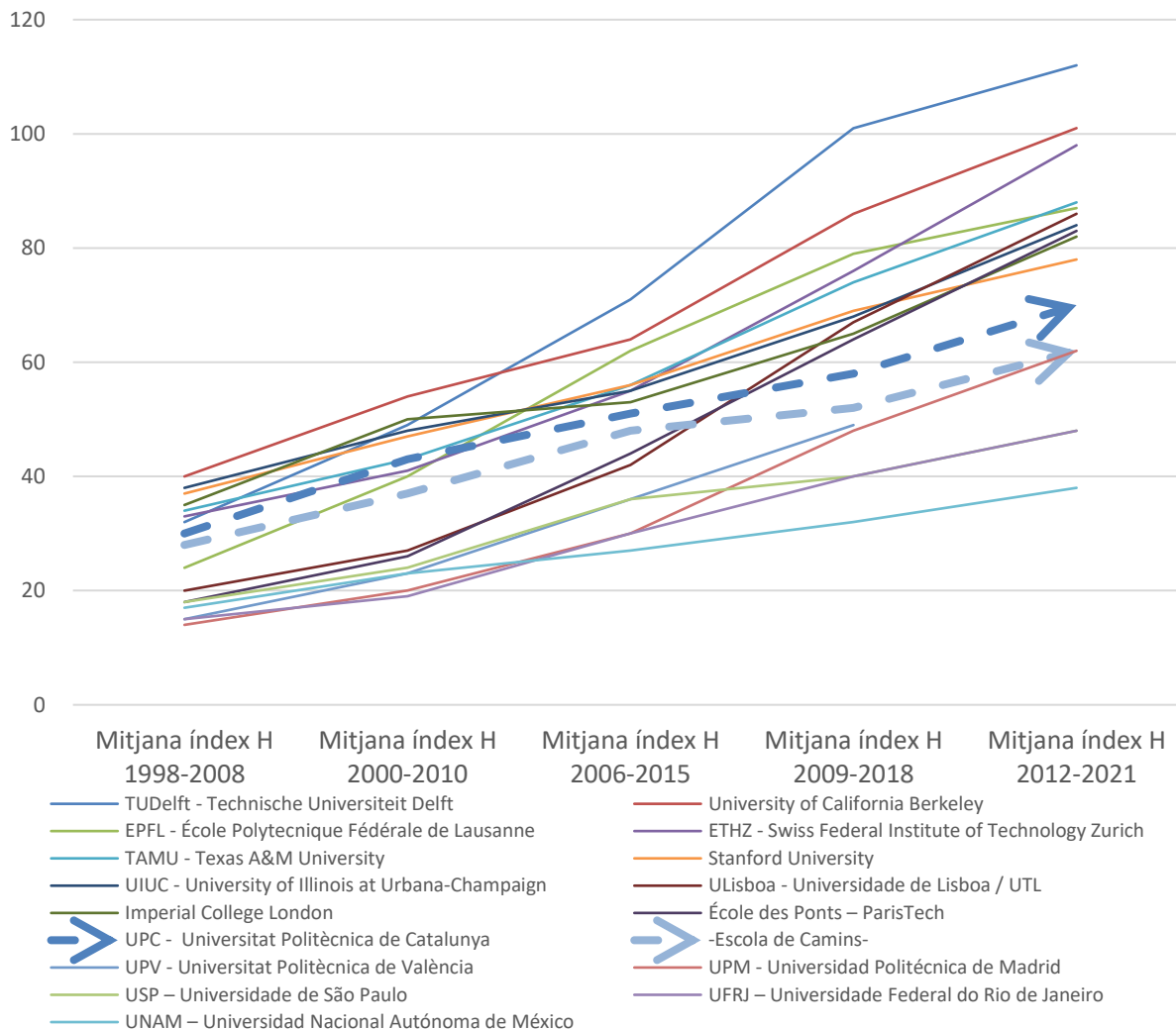
#### 3.1. Gràfics i dades de citacions rebudes per universitats

Es comparen a continuació els índex H per al conjunt d'articles en el període estudiat i institució a institució.



#### 3.2. Gràfics i taula globals de l'índex H 2012-2021







Institució	Mitjana índex H 1998-2008	Mitjana índex H 2000-2010	Mitjana índex H 2006-2015	Mitjana índex H 2009-2018	Mitjana índex H 2012-2021	Variació mitjana	Posició actual
TU Delft - Technische Universiteit Delft	32	49	71	101	112	11	1 ↔
University of California Berkeley	40	54	64	86	101	15	2 ↔
ETHZ - Swiss Federal Institute of Technology Zurich	33	41	55	76	98	22	3 ↑
TAMU - Texas A&M University	34	43	56	74	88	14	4 ↑
EPFL - École Polytechnique Fédérale de Lausanne	24	40	62	79	87	8	5 ↓
ULisboa - Universidade de Lisboa / UTL	20	27	42	67	86	19	6 ↑
UIUC - University of Illinois at Urbana-Champaign	38	48	55	68	84	16	7 ↔
École des Ponts – ParisTech	18	26	44	64	83	19	8 ↑
Imperial College London	35	50	53	65	82	17	9 ↔
Stanford University	37	47	56	69	78	9	10 ↓
UPC - Universitat Politècnica de Catalunya	30	43	51	58	70	12	11 ↔
<b>-Escola de Camins-</b>	<b>28</b>	<b>37</b>	<b>48</b>	<b>52</b>	<b>62</b>	10	12 ↔
UPM - Universidad Politécnica de Madrid	14	20	30	48	62	14	13 ↑
UPV - Universitat Politècnica de València	15	23	36	49	60	11	14 ↓
USP – Universidade de São Paulo	18	24	36	40	48	8	15 ↔
UFRJ – Universidade Federal do Rio de Janeiro	15	19	30	40	48	8	16 ↔
UNAM – Universidad Nacional Autónoma de México	17	23	27	32	38	6	17 ↔



#### 4. Articles més citats 2012-2021<sup>11</sup>

Institució a institució, es detalla a continuació la llista dels 10 articles més referenciats durant el període de temps que abasta l'informe. Per a la UPC es recullen els 20 primers articles indexats al WoS.

##### 4.1. UPC - Universitat Politècnica de Catalunya

Es destaquen en negreta aquells articles amb un o més autors amb assignació a l'Escola de Camins. S'observa que, dels 20 títols recollits, 14 pertanyen a aquesta categoria. Això representa un 70% del total dels articles esmentats.

Tot i així, cal aclarir que algun dels professors marcats com a Escola de Camins no estan actualment assignats a l'Escola –en aquest cas, també s'usa la negreta perquè quan es van publicar els articles recollits sí que ho estaven–.

#	Autors	Articles	Revista	# Citacions
1	<b>Corominas, J;</b> van Westen, C; Frattini, P; <b>Mavrouli, O;</b> [et al.]	Recommendations for the quantitative analysis of landslide risk	<i>BULLETIN OF ENGINEERING GEOLOGY AND THE ENVIRONMENT</i> 73 (2) , pp.209-263 May 2014	577
2	Birkmann, J; Cardona, OD; <b>Carreno, ML;</b> <b>Barbat, AH;</b> [et al.]	Framing vulnerability, risk and societal responses: the MOVE framework	<i>NATURAL HAZARDS</i> 67 (2) , pp.193-211 Jun 2013	473
3	Munoz, O; Pascual-Iserte, A; Vidal, J	Optimization of Radio and Computational Resources for Energy Efficiency in Latency-Constrained Application Offloading	<i>IEEE TRANSACTIONS ON VEHICULAR TECHNOLOGY</i> , vol. 64 núm. 10 , 4738-4755 p. Oct. 2015	244
4	Soga, K; <b>Alonso, E;</b> <b>Yerro, A;</b> Kumar, K; Bandara, S	Trends in large-deformation analysis of landslide mass movements with particular emphasis on the material point method	<i>GEOTECHNIQUE</i> 66 (3) , pp.248-273 Mar 2016	215
5	<b>Andreu, G;</b> <b>Etxebarria, M</b>	Experimental analysis of properties of high performance recycled aggregate concrete	<i>CONSTRUCTION AND BUILDING MATERIALS</i> 52 , pp.227-235 Feb 15 2014	193
6	Du, WB; Zhou, XL; Lordan, O; Wang, Z; Zhao, C; Zhu, YB	Analysis of the Chinese Airline Network as multi-layer networks	<i>TRANSPORTATION RESEARCH PART E-LOGISTICS AND TRANSPORTATION REVIEW</i> 89 , pp.108-116 May 2016	186
7	Rouzbehi, K; Miranian, A; Candela, JI; Luna, A; Rodriguez, P	A Generalized Voltage Droop Strategy for Control of Multiterminal DC Grids	<i>IEEE TRANSACTIONS ON INDUSTRY APPLICATIONS</i> 51 (1) , pp.607-618 Jan-feb 2015	178

<sup>11</sup>.- Bases de dades consultades durant l'octubre de 2022. S'inclouen també, per tant, les cites rebudes pels articles durant l'any 2022 fins a la data de consulta.



#	Autors	Articles	Revista	# Citacions
8	<b>Alfarah, B;</b> Lopez-Almansa, F; <b>Oller, S</b>	New methodology for calculating damage variables evolution in Plastic Damage Model for RC structures	<i>ENGINEERING STRUCTURES</i> 132 , pp.70-86 Feb 1 2017	159
9	<b>Salazar, F; Moran, R;</b> Toledo, MA; <b>Onate, E</b>	Data-Based Models for the Prediction of Dam Behaviour: A Review and Some Methodological Considerations	<i>ARCHIVES OF COMPUTATIONAL METHODS IN ENGINEERING</i> 24 (1) , pp.1-21 Jan 2017	158
10	<b>Blade, E;</b> Cea, L; <b>Corestein, G;</b> Escolano, E; Puertas, J; Vazquez-Cendon, E; <b>Dolz, J;</b> Coll, A	Iber - River modelling simulation tool	<i>REVISTA INTERNACIONAL DE METODOS NUMERICOS PARA CALCULO Y DISEÑO EN INGENIERIA</i> 30 (1) , pp.1-10 2014	155
11	Adrados, B; Sanchez, O; Arias, CA; Becares, E; Garrido, L; Mas, J; Brix, H; Morato, J	Microbial communities from different types of natural wastewater treatment systems: Vertical and horizontal flow constructed wetlands and biofilters	<i>WATER RESEARCH</i> 55 , pp.304-312 May 15 2014	142
12	Luna, A; Rocabert, J; Candela, JI; Hermoso, JR; Teodorescu, R; Blaabjerg, F; Rodriguez, P	Grid Voltage Synchronization for Distributed Generation Systems Under Grid Fault Conditions	<i>IEEE TRANSACTIONS ON INDUSTRY APPLICATIONS</i> 51 (4) , pp.3414-3425 Jul-aug 2015	129
14	<b>Passos, F; Ferrer, I</b>	Influence of hydrothermal pretreatment on microalgal biomass anaerobic digestion and bioenergy production	<i>WATER RESEARCH</i> 68 , pp.364-373 Jan 1 2015	129
13	Zhou, AN; Sheng, DC; Sloan, SW; <b>Gens, A</b>	Interpretation of unsaturated soil behaviour in the stress - Saturation space, I: Volume change and water retention behaviour	<i>COMPUTERS AND GEOTECHNICS</i> 43 , pp.178-187 Jun 2012	129
15	<b>Romero, E</b>	A microstructural insight into compacted clayey soils and their hydraulic properties	<i>ENGINEERING GEOLOGY</i> 165 , pp.3-19 Oct 24 2013	122
16	Bergada, JM; Kumar, S; Davies, DL; Watton, J	A complete analysis of axial piston pump leakage and output flow ripples	<i>APPLIED MATHEMATICAL MODELLING</i> 36 (4) , pp.1731-1751 Apr 2012	121
17	<b>Alonso, EE; Pinyol, NM; Gens, A</b>	Compacted soil behaviour: initial state, structure and constitutive modelling	<i>GEOTECHNIQUE</i> 63 (6) , pp.463-478 May 2013	121
20	<b>Salazar, F;</b> Toledo, MA; <b>Onate, E;</b> Moran, R	An empirical comparison of machine learning techniques for dam behaviour modelling	<i>STRUCTURAL SAFETY</i> 56 , pp.9-17 2015	116
18	<b>Salvador, RP; Cavalaro, SHP; Segura, I;</b> Figueiredo, AD; Perez, J	Early age hydration of cement pastes with alkaline and alkali-free accelerators for sprayed concrete	<i>CONSTRUCTION AND BUILDING MATERIALS</i> 111 , pp.386-398 May 15 2016	116





#	Autors	Articles	Revista	# Citacions
19	<b>Li, B; Peco, C; Millan, D; Arias, I; Arroyo, M</b>	Phase-field modeling and simulation of fracture in brittle materials with strongly anisotropic surface energy	<i>INTERNATIONAL JOURNAL FOR NUMERICAL METHODS IN ENGINEERING</i> 102 (3-4) , pp.711-727 Apr 20 2015	115



#### 4.1.1. Escola de Camins

Es mostren els articles publicats al període 2012-2021, amb més de 75 citacions<sup>12</sup> dels professors vinculats a l'Escola de Camins, indexats a Web of Science sota les categories considerades a l'estudi. Els autors de l'Escola es destaquen en negreta.

A l'annex 2 es pot consultar la llista dels articles amb més de 75 citacions dels professors de l'Escola, independentment de la les categories WoS sota les quals estiguin indexats

#	Autors	Articles	Revista	# Citacions
1	<b>Corominas, J</b> ; van Westen, C; Frattini, P; <b>Mavrouli, O</b> ; [et al.]	Recommendations for the quantitative analysis of landslide risk	<i>BULLETIN OF ENGINEERING GEOLOGY AND THE ENVIRONMENT</i> 73 (2) , pp.209-263 May 2014	577
2	Birkmann, J; Cardona, OD; <b>Carreno, ML</b> ; <b>Barbat, AH</b> ; [et al.]	Framing vulnerability, risk and societal responses: the MOVE framework	<i>NATURAL HAZARDS</i> 67 (2) , pp.193-211 Jun 2013	473
3	Soga, K; <b>Alonso, E</b> ; <b>Yerro, A</b> ; Kumar, K; Bandara, S	Trends in large-deformation analysis of landslide mass movements with particular emphasis on the material point method	<i>GEOTECHNIQUE</i> 66 (3) , pp.248-273 Mar 2016	215
4	<b>Andreu, G</b> ; <b>Etxebarria, M</b>	Experimental analysis of properties of high performance recycled aggregate concrete	<i>CONSTRUCTION AND BUILDING MATERIALS</i> 52 , pp.227-235 Feb 15 2014	193
5	<b>Alfarah, B</b> ; Lopez-Almansa, F; <b>Oller, S</b>	New methodology for calculating damage variables evolution in Plastic Damage Model for RC structures	<i>ENGINEERING STRUCTURES</i> 132 , pp.70-86 Feb 1 2017	159
6	<b>Salazar, F</b> ; <b>Moran, R</b> ; Toledo, MA; <b>Onate, E</b>	Data-Based Models for the Prediction of Dam Behaviour: A Review and Some Methodological Considerations	<i>ARCHIVES OF COMPUTATIONAL METHODS IN ENGINEERING</i> 24 (1) , pp.1-21 Jan 2017	158
7	<b>Blade, E</b> ; Cea, L; <b>Corestein, G</b> ; Escolano, E; Puertas, J; Vazquez-Cendon, E; <b>Dolz, J</b> ; Coll, A	Iber - River modelling simulation tool	<i>REVISTA INTERNACIONAL DE METODOS NUMERICOS PARA CALCULO Y DISEÑO EN INGENIERIA</i> 30 (1) , pp.1-10 2014	155
8	<b>Passos, F</b> ; <b>Ferrer, I</b>	Influence of hydrothermal pretreatment on microalgal biomass anaerobic digestion and bioenergy production	<i>WATER RESEARCH</i> 68 , pp.364-373 Jan 1 2015	129
9	Zhou, AN; Sheng, DC; Sloan, SW; <b>Gens, A</b>	Interpretation of unsaturated soil behaviour in the stress - Saturation space, I: Volume change and water retention behaviour	<i>COMPUTERS AND GEOTECHNICS</i> 43 , pp.178-187 Jun 2012	129

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11	<b>Alonso, EE; Pinyol, NM; Gens, A</b>	Compacted soil behaviour: initial state, structure and constitutive modelling	<i>GEOTECHNIQUE</i> 63 (6) , pp.463-478 May 2013	121
12	<b>Salazar, F;</b> Toledo, MA; <b>Onate, E;</b> Moran, R	An empirical comparison of machine learning techniques for dam behaviour modelling	<i>STRUCTURAL SAFETY</i> 56 , pp.9-17 2015	116
13	<b>Salvador, RP; Cavalaro, SHP; Segura, I;</b> Figueiredo, AD; Perez, J	Early age hydration of cement pastes with alkaline and alkali-free accelerators for sprayed concrete	<i>CONSTRUCTION AND BUILDING MATERIALS</i> 111 , pp.386-398 May 15 2016	116
14	<b>Li, B; Peco, C; Millan, D; Arias, I; Arroyo, M</b>	Phase-field modeling and simulation of fracture in brittle materials with strongly anisotropic surface energy	<i>INTERNATIONAL JOURNAL FOR NUMERICAL METHODS IN ENGINEERING</i> 102 (3-4) , pp.711-727 Apr 20 2015	115
15	<b>Fernandez, I; Bairan, JM; Mari, AR</b>	Corrosion effects on the mechanical properties of reinforcing steel bars. Fatigue and sigma-epsilon behavior	<i>CONSTRUCTION AND BUILDING MATERIALS</i> 101 , pp.772-783 Dec 30 2015	114
16	<b>Ciantia, MO; Arroyo, M; Calvetti, F; Gens, A</b>	An approach to enhance efficiency of DEM modelling of soils with crushable grains	<i>GEOTECHNIQUE</i> 65 (2) , pp.91-110 2015	112
17	<b>Gonzalez-Corominas, A; Etxeberria, M</b>	Properties of high performance concrete made with recycled fine ceramic and coarse mixed aggregates	<i>CONSTRUCTION AND BUILDING MATERIALS</i> 68 , pp.618-626 Oct 15 2014	112
18	Cea, L; <b>Blade, E</b>	A simple and efficient unstructured finite volume scheme for solving the shallow water equations in overland flow applications	<i>WATER RESOURCES RESEARCH</i> 51 (7) , pp.5464-5486 JUL 2015	106
19	<b>Avila, C;</b> Reyes, C; Bayona, JM; <b>Garcia, J</b>	Emerging organic contaminant removal depending on primary treatment and operational strategy in horizontal subsurface flow constructed wetlands: Influence of redox	<i>WATER RESEARCH</i> 47 (1) , pp.315-325 Jan 1 2013	105
20	<b>Altomare, C;</b> Crespo, AJC; Rogers, BD; Dominguez, JM; <b>Gironella, X;</b> Gomez-Gesteira, M	Numerical modelling of armour block sea breakwater with smoothed particle hydrodynamics	<i>COMPUTERS &amp; STRUCTURES</i> 130 , pp.34-45 Jan 2014	105
21	<b>Yerro, A; Alonso, EE; Pinyol, NM</b>	The material point method for unsaturated soils	<i>GEOTECHNIQUE</i> 65 (3) , pp.201-217 2015	99
22	Lakshmikantha, MR; <b>Prat, PC;</b> <b>Ledesma, A</b>	Experimental evidence of size effect in soil cracking	<i>CANADIAN GEOTECHNICAL JOURNAL</i> 49 (3) , pp.264-284 Mar 2012	98
23	<b>Torrens-Martin, D;</b> <b>Fernandez-Carrasco, L;</b> Martinez-Ramirez, S	Hydration of calcium aluminates and calcium sulfoaluminate studied by Raman spectroscopy	<i>CEMENT AND CONCRETE RESEARCH</i> 47 , pp.43-50 May 2013	95



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25	Pujadas, P; <b>Blanco, A;</b> Cavalaro, S; <b>Aguado, A</b>	Plastic fibres as the only reinforcement for flat suspended slabs: Experimental investigation and numerical simulation	<i>CONSTRUCTION AND BUILDING MATERIALS</i> 57 , pp.92-104 Apr 30 2014	93
26	<b>Gonzalez-Corominas, A;</b> <b>Etxeberria, M</b>	Effects of using recycled concrete aggregates on the shrinkage of high performance concrete	<i>CONSTRUCTION AND BUILDING MATERIALS</i> 115 , pp.32-41 Jul 15 2016	92
27	<b>de la Fuente, A; Pujadas, P; Blanco, A; Aguado, A</b>	Experiences in Barcelona with the use of fibres in segmental linings	<i>TUNNELLING AND UNDERGROUND SPACE TECHNOLOGY</i> 27 (1) , pp.60-71 Jan 2012	92
28	Pons, O; <b>Aguado, A</b>	Integrated value model for sustainable assessment applied to technologies used to build schools in Catalonia, Spain	<i>BUILDING AND ENVIRONMENT</i> 53 , pp.49-58 Jul 2012	92
29	Ng, CWW; Sadeghi, H; Hossen, SKB; Chiu, CF; <b>Alonso, EE;</b> Baghbanrezvan, S	Water retention and volumetric characteristics of intact and re-compacted loess	<i>CANADIAN GEOTECHNICAL JOURNAL</i> 53 (8) , pp.1258-1269 Aug 2016	92
30	<b>Pela, L; Cervera, M; Roca, P</b>	An orthotropic damage model for the analysis of masonry structures	<i>CONSTRUCTION AND BUILDING MATERIALS</i> 41 , pp.957-967 Apr 2013	91
31	Musso, G; <b>Romero, E;</b> Della Vecchia, G	Double-structure effects on the chemo-hydro-mechanical behaviour of a compacted active clay	<i>GEOTECHNIQUE</i> 63 (3) , pp.206-220 Mar 2013	90
32	<b>Hernandez, JA; Oliver, J; Huespe, AE; Caicedo, MA; Cante, JC</b>	High-performance model reduction techniques in computational multiscale homogenization	<i>COMPUTER METHODS IN APPLIED MECHANICS AND ENGINEERING</i> 276 , pp.149-189 Jul 1 2014	90
33	Ikumi, T; <b>Cavalaro, SHP; Segura, I; Aguado, A</b>	Alternative methodology to consider damage and expansions in external sulfate attack modeling	<i>CEMENT AND CONCRETE RESEARCH</i> 63 , pp.105-116 Sep 2014	87
34	Trabelsi, H; Jamei, M; Zenzri, H; <b>Olivella, S</b>	Crack patterns in clayey soils: Experiments and modeling	<i>INTERNATIONAL JOURNAL FOR NUMERICAL AND ANALYTICAL METHODS IN GEOMECHANICS</i> 36 (11) , pp.1410-1433 Aug 10 2012	87
35	Escrig, C; <b>Gil, L;</b> Bernat-Maso, E; Puigvert, F	Experimental and analytical study of reinforced concrete beams shear strengthened with different types of textile-reinforced mortar	<i>CONSTRUCTION AND BUILDING MATERIALS</i> 83 , pp.248-260 May 15 2015	87



#	Autors	Articles	Revista	# Citacions
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37	Kou, SC; Poon, CS; <b>Etxeberria, M</b>	Residue strength, water absorption and pore size distributions of recycled aggregate concrete after exposure to elevated temperatures	<i>CEMENT &amp; CONCRETE COMPOSITES</i> 3 , pp.73-82 Oct 2014	86
38	<b>Passos, F</b> ; Hernandez-Marine, M; <b>Garcia, J</b> ; <b>Ferrer, I</b>	Long-term anaerobic digestion of microalgae grown in HRAP for wastewater treatment. Effect of microwave pretreatment	<i>WATER RESEARCH</i> 49 , pp.351-359 Feb 1 2014	82
39	Della Vecchia, G; Jommi, C; <b>Romero, E</b>	A fully coupled elastic-plastic hydromechanical model for compacted soils accounting for clay activity	<i>INTERNATIONAL JOURNAL FOR NUMERICAL AND ANALYTICAL METHODS IN GEOMECHANICS</i> 37 (5) , pp.503-535 Apr 10 2013	81
40	Ghnatios, C; Masson, F; <b>Huerta, A</b> ; Leygue, A; Cueto, E; Chinesta, F	Proper Generalized Decomposition based dynamic data-driven control of thermal processes	<i>COMPUTER METHODS IN APPLIED MECHANICS AND ENGINEERING</i> 213 , pp.29-41 2012	80
41	<b>Aguado, A</b> ; del Cano, A; de la Cruz, MP; Gomez, D; <b>Josa, A</b>	Sustainability Assessment of Concrete Structures within the Spanish Structural Concrete Code	<i>JOURNAL OF CONSTRUCTION ENGINEERING AND MANAGEMENT</i> 138 (2) , pp.268-276 Feb 2012	78
42	<b>Hosseini, SMA</b> ; de la Fuente, A; Pons, O	Multi-criteria decision-making method for assessing the sustainability of post-disaster temporary housing units technologies: A case study in Bam, 2003	<i>SUSTAINABLE CITIES AND SOCIETY</i> 20 , pp.38-51 Jan 2016	77
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44	<b>Ruiz-Villanueva, V</b> ; <b>Blade, E</b> ; <b>Sanchez-Juny, M</b> ; Marti-Cardona, B; Diez-Herrero, A; Bodoque, JM	Two-dimensional numerical modeling of wood transport	<i>JOURNAL OF HYDROINFORMATICS</i> 16 (5) , pp.1077-1096 2014	77
45	<b>Roca, P</b> ; <b>Cervera, M</b> ; <b>Pela, L</b> ; <b>Clemente, R</b> ; <b>Chiumenti, M</b>	Continuum FE models for the analysis of Mallorca Cathedral	<i>ENGINEERING STRUCTURES</i> 46 , pp.653-670 Jan 2013	75
46	<b>Laranjeira, F</b> ; <b>Aguado, A</b> ; <b>Molins, C</b> ; Grunewald, S; Walraven, J; Cavalaro, S	Framework to predict the orientation of fibers in FRC: A novel philosophy	<i>CEMENT AND CONCRETE RESEARCH</i> 42 (6) , pp.752-768 Jun 2012	75



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47	<b>Laranjeira, F; Aguado, A; Molins, C;</b> Grunewald, S; Walraven, J; Cavalaro, S	Framework to predict the orientation of fibers in FRC: A novel philosophy	<i>CEMENT AND CONCRETE RESEARCH</i> 42 (6) , pp.752-768 Jun 2012	75



## 4.2. EPFL - Ecole Polytechnique Fédérale de Lausanne

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2	Antoni, M; Rossen, J; Martirena, F; Scrivener, K	Cement substitution by a combination of metakaolin and limestone	<i>CEMENT AND CONCRETE RESEARCH</i> 42 (12) , pp.1579-1589 Dec 2012	511
3	Scrivener, KL; Juilland, P; Monteiro, PJM	Advances in understanding hydration of Portland cement	<i>CEMENT AND CONCRETE RESEARCH</i> 78 , pp.38-56 Dec 2015	483
4	Zhou, YX; Xia, K; Li, XB; Li, HB; Ma, GW; Zhao, J; Zhou, ZL; Dai, F	Suggested methods for determining the dynamic strength parameters and mode-I fracture toughness of rock materials	<i>INTERNATIONAL JOURNAL OF ROCK MECHANICS AND MINING SCIENCES</i> 49 , pp.105-112 Jan 2012	477
5	Dejong, JT; Soga, K; Kavazanjian, E; Burns, SE; Van Paassen, LA; (et al.)	Biogeochemical processes and geotechnical applications: progress, opportunities and challenges	<i>GEOTECHNIQUE</i> 63 (4) , pp.287-301 Mar 2013	455
6	Duarte, M; Sabharwal, A; Aggarwal, V; Jana, R; Ramakrishnan, KK; Rice, CW; Shankaranarayanan, NK	Design and Characterization of a Full-Duplex Multiantenna System for WiFi Networks	<i>IEEE TRANSACTIONS ON VEHICULAR TECHNOLOGY</i> 63 (3) , pp.1160-1177 Mar 2014	346
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8	Zhang, QB; Zhao, J	Determination of mechanical properties and full-field strain measurements of rock material under dynamic loads	<i>INTERNATIONAL JOURNAL OF ROCK MECHANICS AND MINING SCIENCES</i> 60 , pp.423-439 Jun 2013	246
9	Amatya, BL; Soga, K; Bourne-Webb, PJ; Amis, T; Laloui, L	Thermo-mechanical behaviour of energy piles	<i>GEOTECHNIQUE</i> 62 (6) , pp.503-519 Jun 2012	246
10	Rajabipour, F; Giannini, E; Dunant, C; Ideker, JH; Thomas, MDA	Alkali-silica reaction: Current understanding of the reaction mechanisms and the knowledge gaps	<i>CEMENT AND CONCRETE RESEARCH</i> 76 , pp.130-146 Oct 2015	243





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2	Scrivener, KL; John, VM; Gartner, EM	Eco-efficient cements: Potential economically viable solutions for a low-CO2 cement-based materials industry	<i>CEMENT AND CONCRETE RESEARCH</i> 114 , pp.2-26 Dec 2018	618
3	Krevor, SCM; Pini, R; Zuo, L; Benson, SM	Relative permeability and trapping of CO2 and water in sandstone rocks at reservoir conditions	<i>WATER RESOURCES RESEARCH</i> 48 Feb 28 2012	369
4	Akkar, S; Sandikkaya, MA; Bommer, JJ	Empirical ground-motion models for point- and extended-source crustal earthquake scenarios in Europe and the Middle East	<i>BULLETIN OF EARTHQUAKE ENGINEERING</i> 12 (1) , pp.359-387 Feb 2014	347
5	Hall, J; Arheimer, B; Borga, M; (et al.)	Understanding flood regime changes in Europe: a state-of-the-art assessment	<i>HYDROLOGY AND EARTH SYSTEM SCIENCES</i> 18 (7) , pp.2735-2772 2014	327
6	Hoek, E; Brown, ET	The Hoek-Brown failure criterion and GSI - 2018 edition	<i>JOURNAL OF ROCK MECHANICS AND GEOTECHNICAL ENGINEERING</i> 11 (3) , pp.445-463 Jun 2019	271
7	Bloschl, G; Bierkens, MFP; Chambel, A; (et al.)	Twenty-three unsolved problems in hydrology (UPH) - a community perspective	<i>HYDROLOGICAL SCIENCES JOURNAL</i> 64 (10) , pp.1141-1158 Jul 2019	263
8	Andrew, M; Bijeljic, B; Blunt, MJ	Pore-scale contact angle measurements at reservoir conditions using X-ray microtomography	<i>ADVANCES IN WATER RESOURCES</i> 68 , pp.24-31 Jun 2014	237
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2	Werner, AD; Bakker, M; Post, VEA; Vandenbohede, A; Lu, CH; Ataie-Ashtiani, B; Simmons, CT; Barry, DA	Seawater intrusion processes, investigation and management: Recent advances and future challenges	<i>ADVANCES IN WATER RESOURCES</i> 51 , pp.3-26 Jan 2013	768
3	Hrachowitz, M; Savenije, HHG; Blöschl, G; (et al.)	A decade of Predictions in Ungauged Basins (PUB)a review	<i>HYDROLOGICAL SCIENCES JOURNAL-JOURNAL DES SCIENCES HYDROLOGIQUES</i> 58 (6) , pp.1198-1255 Aug 1 2013	600
4	Sivapalan, M; Savenije, HHG; Blöschl, G	Socio-hydrology: A new science of people and water	<i>HYDROLOGICAL PROCESSES</i> 26 (8) , pp.1270-1276 Apr 15 2012	599
5	Kyriakidis, M; Happee, R; de Winter, JCF	Public opinion on automated driving: Results of an international questionnaire among 5000 respondents	<i>TRANSPORTATION RESEARCH PART F- TRAFFIC PSYCHOLOGY AND BEHAVIOUR</i> 32 , pp.127-140 Jul 2015	564
6	Dejong, JT; Soga, K; Kavazanjian, E; (et al.)	Biogeochemical processes and geotechnical applications: progress, opportunities and challenges	<i>GEOTECHNIQUE</i> 63 (4) , pp.287-301 Mar 2013	455
7	Montanari, A; Young, G; Savenije, HHG; (et al.)	Panta Rhei-Everything Flows: Change in hydrology and society-The IAHS Scientific Decade 2013-2022	<i>HYDROLOGICAL SCIENCES JOURNAL-JOURNAL DES SCIENCES HYDROLOGIQUES</i> 58 (6) , pp.1256-1275 Aug 1 2013	447
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9	Maier, HR; Kapelan, Z; Kasprzyk, J; (et al.)	Evolutionary algorithms and other metaheuristics in water resources: Current status, research challenges and future directions	<i>ENVIRONMENTAL MODELLING &amp; SOFTWARE</i> 62 , pp.271-299 Dec 2014	393
10	Holliger, C; Alves, M; Andrade, D; (et al.)	Towards a standardization of biomethane potential tests	<i>WATER SCIENCE AND TECHNOLOGY</i> 74 (11) , pp.2515-2522 Dec 2016	391



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2	Kundzewicz, ZW; Kanae, S; Seneviratne, SI; (et al.)	Flood risk and climate change: global and regional perspectives	<i>HYDROLOGICAL SCIENCES JOURNAL</i> 59 (1) , pp.1-28 Jan 2 2014	610
3	Gudmundsson, L; Bremnes, JB; Haugen, JE; Engen-Skaugen, T	Technical Note: Downscaling RCM precipitation to the station scale using statistical transformations - a comparison of methods	<i>HYDROLOGY AND EARTH SYSTEM SCIENCES</i> 16 (9) , pp.3383-3390 2012	549
4	Montanari, A; Young, G; Savenije, HHG; Hughes, D; (et al.)	Panta Rhei-Everything Flows: Change in hydrology and society-The IAHS Scientific Decade 2013-2022	<i>HYDROLOGICAL SCIENCES JOURNAL-JOURNAL DES SCIENCES HYDROLOGIQUES</i> 58 (6) , pp.1256-127 Aug 1 2013	447
5	Roussel, N	Rheological requirements for printable concretes	<i>CEMENT AND CONCRETE RESEARCH</i> 112 , pp.76-85 Oct 2018	355
6	Hall, J; Arheimer, B; Borga, M; (et al.)	Understanding flood regime changes in Europe: a state-of-the-art assessment	<i>HYDROLOGY AND EARTH SYSTEM SCIENCES</i> 18 (7) , pp.2735-2772 2014	327
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8	Heeb, MB; Criquet, J; Zimmermann-Steffens, SG; von Gunten, U	Oxidative treatment of bromide-containing waters: Formation of bromine and its reactions with inorganic and organic compounds - A critical review	<i>WATER RESEARCH</i> 48 , pp.15-42 Jan 1 2014	310
9	Laureni, M; Falas, P; Robin, O; Wick, A; Weissbrodt, DG; Nielsen, JL; Ternes, TA; Morgenroth, E; Joss, A	Mainstream partial nitrification and anammox: long-term process stability and effluent quality at low temperatures	<i>WATER RESEARCH</i> 101 , pp.628-639 Sep 15 2016	305
10	Woessner, J; Laurentiu, D; Giardini, D; (et al.)	The 2013 European Seismic Hazard Model: key components and results	<i>BULLETIN OF EARTHQUAKE ENGINEERING</i> 13 (12) , pp.3553-3596 Dec 2015	297



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2	Shen, SL; Wu, HN; Cui, YJ; Yin, ZY	Long-term settlement behaviour of metro tunnels in the soft deposits of Shanghai	<i>TUNNELLING AND UNDERGROUND SPACE TECHNOLOGY</i> 40 , pp.309-323 Feb 2014	385
3	Roussel, N; Ovarlez, G; Garrault, S; Brumaud, C	The origins of thixotropy of fresh cement pastes	<i>CEMENT AND CONCRETE RESEARCH</i> 42 (1) , pp.148-157 Jan 2012	383
4	Morandea, A; Thiery, M; Dangla, P	Investigation of the carbonation mechanism of CH and C-S-H in terms of kinetics, microstructure changes and moisture properties	<i>CEMENT AND CONCRETE RESEARCH</i> 56 , pp.153-170 Feb 2014	377
5	Roussel, N	Rheological requirements for printable concretes	<i>CEMENT AND CONCRETE RESEARCH</i> 112 , pp.76-85 Oct 2018	357
6	Payre, W; Cestac, J; Delhomme, P	Intention to use a fully automated car: Attitudes and a priori acceptability	<i>TRANSPORTATION RESEARCH PART F- TRAFFIC PSYCHOLOGY AND BEHAVIOUR</i> 27 , pp.252-263 Nov 2014	342
7	Zeng, Q; Li, KF; Fen-Chong, T; Dangla, P	Pore structure characterization of cement pastes blended with high-volume fly-ash	<i>CEMENT AND CONCRETE RESEARCH</i> 42 (1) , pp.194-204 Jan 2012	288
8	Bresson, G; Alsayed, Z; Yu, L; Glaser, S	Simultaneous Localization and Mapping: A Survey of Current Trends in Autonomous Driving	<i>IEEE TRANSACTIONS ON INTELLIGENT VEHICLES</i> 2 (3) , pp.194-220 Sep 2017	277
9	Bloschl, G; Bierkens, MFP; Chambel, A; (et al.)	Twenty-three unsolved problems in hydrology (UPH) - a community perspective	<i>HYDROLOGICAL SCIENCES JOURNAL</i> 64 (10) , pp.1141-1158 Jul 27 2019	263
10	Tarel, JP; Hautiere, N; Caraffa, L; Cord, A; Halmaoui, H; Gruyer, D	Vision Enhancement in Homogeneous and Heterogeneous Fog	<i>IEEE INTELLIGENT TRANSPORTATION SYSTEMS MAGAZINE</i> 4 (2) , pp.6-20 Sum 2012	244



## 4.7. Stanford University

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2	Mattingley, J; Boyd, S	CVXGEN: a code generator for embedded convex optimization	<i>OPTIMIZATION AND ENGINEERING</i> 13 (1) , pp.1-27 Mar 2012	469
3	Krevor, SCM; Pini, R; Zuo, L; Benson, SM	Relative permeability and trapping of CO2 and water in sandstone rocks at reservoir conditions	<i>WATER RESOURCES RESEARCH</i> 48 Feb 28 2012	369
4	Basbagill, J; Flager, F; Lepech, M; Fischer, M	Application of life-cycle assessment to early stage building design for reduced embodied environmental impacts	<i>BUILDING AND ENVIRONMENT</i> 60 , pp.81-92 Feb 2013	330
5	Lipp, T; Boyd, S	Variations and extension of the convex-concave procedure	<i>OPTIMIZATION AND ENGINEERING</i> 17 (2) , pp.263-287 Jun 2016	323
6	Bozorgnia, Y; Abrahamson, NA; Al Atik, L; (et al.)	NGA-West2 Research Project	<i>EARTHQUAKE SPECTRA</i> 30 (3) , pp.973-987 Aug 2014	303
7	Devillers, R; Pressey, RL; Grech, A; Kittinger, JN; Edgar, GJ; Ward, T; Watson, R	Reinventing residual reserves in the sea: are we favouring ease of establishment over need for protection?	<i>AQUATIC CONSERVATION-MARINE AND FRESHWATER ECOSYSTEMS</i> 25 (4) , pp.480-504 Aug 2015	251
8	Burke, SM; Burke, U; Mc Donagh, R; (et al.)	An experimental and modeling study of propene oxidation. Part 2: Ignition delay time and flame speed measurements	<i>COMBUSTION AND FLAME</i> 162 (2) , pp.296-314 Feb 2015	212
9	Touma, D; Ashfaq, M; Nayak, MA; Kao, SC; Diffenbaugh, NS	A multi-model and multi-index evaluation of drought characteristics in the 21st century	<i>JOURNAL OF HYDROLOGY</i> 526 , pp.196-207 Jul 2015	211
10	Tran, NH; Chen, HJ; Reinhard, M; Mao, F; Gin, KYH	Occurrence and removal of multiple classes of antibiotics and antimicrobial agents in biological wastewater treatment processes	<i>WATER RESEARCH</i> 104 , pp.461-472 Nov 1 2016	200



#### 4.8. TAMU - Texas A&M University

#	Autors	Articles	Revista	# Citacions
1	Ning, FD; Cong, WL; Qiu, JJ; Wei, JH; Wang, SR	Additive manufacturing of carbon fiber reinforced thermoplastic composites using fused deposition modeling	<i>COMPOSITES PART B-ENGINEERING</i> 80 , pp.369-378 Oct 2015	798
2	Abbaspour, KC; Rouholahnejad, E; Vaghefi, S; Srinivasan, R; Yang, H; Klove, B	A continental-scale hydrology and water quality model for Europe: Calibration and uncertainty of a high-resolution large-scale SWAT model	<i>JOURNAL OF HYDROLOGY</i> 524 , pp.733-752 May 2015	737
3	Talebpour, A; Mahmassani, HS	Influence of connected and autonomous vehicles on traffic flow stability and throughput	<i>TRANSPORTATION RESEARCH PART C-EMERGING TECHNOLOGIES</i> 71 , pp.143-163 Oct 2016	577
4	Keromnes, A; Metcalfe, WK; Heufer, KA; Donohoe, N; Das, AK; Sung, CJ; Herzler, J; Naumann, C; Griebel, P; Mathieu, O; Krejci, MC; Petersen, EL; Pitz, WJ; Curran, HJ	An experimental and detailed chemical kinetic modeling study of hydrogen and syngas mixture oxidation at elevated pressures	<i>COMBUSTION AND FLAME</i> 160 (6) , pp.995-1011 Jun 2013	417
5	Simsek, M; Reddy, JN	Bending and vibration of functionally graded microbeams using a new higher order beam theory and the modified couple stress theory	<i>INTERNATIONAL JOURNAL OF ENGINEERING SCIENCE</i> 64 , pp.37-53 Mar 2013	384
6	Fernandez-Saez, J; Zaera, R; Loya, JA; Reddy, JN	Bending of Euler-Bernoulli beams using Eringen's integral formulation: A paradox resolved	<i>INTERNATIONAL JOURNAL OF ENGINEERING SCIENCE</i> 99 , pp.107-116 Feb 2016	310
7	Zhang, CL; Zheng, LC; Zhang, XX; Chen, G	MHD flow and radiation heat transfer of nanofluids in porous media with variable surface heat flux and chemical reaction	<i>APPLIED MATHEMATICAL MODELLING</i> 39 (1) , pp.165-181 Jan 1 2015	294
8	Wang, H; Wu, Y; Feng, MB; Tu, WG; Xiao, T; Xiong, T; Ang, HX; Yuan, XZ; Chew, JW	Visible-light-driven removal of tetracycline antibiotics and reclamation of hydrogen energy from natural water matrices and wastewater by polymeric carbon nitride foam	<i>WATER RESEARCH</i> 144 , pp.215-225 Nov 1 2018	291
9	Chapi, K; Singh, VP; Shirzadi, A; Shahabi, H; Bui, DT; Pham, BT; Khosravi, K	A novel hybrid artificial intelligence approach for flood susceptibility assessment	<i>ENVIRONMENTAL MODELLING &amp; SOFTWARE</i> 95 , pp.229-245 Sep 2017	277
10	Burke, U; Somers, KP; O'Toole, P; Zinner, CM; Marquet, N; Bourque, G; Petersen, EL; Metcalfe, WK; Serinyel, Z; Curran, HJ	An ignition delay and kinetic modeling study of methane, dimethyl ether, and their mixtures at high pressures	<i>COMBUSTION AND FLAME</i> 162 (2) , pp.315-330 Feb 2015	263





#### 4.9. UI - University of Illinois at Urbana-Champaign

#	Autors	Articles	Revista	# Citacions
1	Sivapalan, M; Savenije, HHG; Blöschl, G	Socio-hydrology: A new science of people and water	<i>HYDROLOGICAL PROCESSES</i> 26 (8) , pp.1270-1276 Apr 15 2012	601
2	Hrachowitz, M; Savenije, HHG; Blöschl, G; (et al.)	A decade of Predictions in Ungauged Basins (PUB)a review	<i>HYDROLOGICAL SCIENCES JOURNAL-JOURNAL DES SCIENCES HYDROLOGIQUES</i> 58 (6) , pp.1198-1255 Aug 1 2013	600
3	Montanari, A; Young, G; Savenije, HHG; (et al.)	Panta Rhei-Everything Flows: Change in hydrology and society-The IAHS Scientific Decade 2013-2022	<i>HYDROLOGICAL SCIENCES JOURNAL-JOURNAL DES SCIENCES HYDROLOGIQUES</i> 58 (6) , pp.1256-1275 Aug 1 2013	447
4	Talischí, C; Paulino, GH; Pereira, A; Menezes, IFM	PolyMesher: a general-purpose mesh generator for polygonal elements written in Matlab	<i>STRUCTURAL AND MULTIDISCIPLINARY OPTIMIZATION</i> 45 (3) , pp.309-328 Mar 2012	342
5	Su, Y; Cui, H; Li, Q; Gao, SA; Shang, JK	Strong adsorption of phosphate by amorphous zirconium oxide nanoparticles	<i>WATER RESEARCH</i> Jul 2012   40 , pp.288-298	331
6	Xiao, JZ; Li, WG; Sun, ZH; Lange, DA; Shah, SP	Properties of interfacial transition zones in recycled aggregate concrete tested by nanoindentation	<i>CEMENT &amp; CONCRETE COMPOSITES</i> 64 (10) , pp.1141-1158 Jul 27 2019	292
7	Miller, DJ; Fahnstock, LA; Eatherton, MR	Development and experimental validation of a nickel-titanium shape memory alloy self-centering buckling-restrained brace	<i>ENGINEERING STRUCTURES</i> 47 (14) , pp.5018-5026 Sep 15 2013	285
8	Blöschl, G; Bierkens, MFP; Chambel, A; (et al.)	Twenty-three unsolved problems in hydrology (UPH) - a community perspective	<i>HYDROLOGICAL SCIENCES JOURNAL</i> 37 , pp.276-292 Mar 2013	263
9	Stern, RE; Cui, SM; Delle Monache, ML; (et al.)	Dissipation of stop-and-go waves via control of autonomous vehicles: Field experiments	<i>TRANSPORTATION RESEARCH PART C-EMERGING TECHNOLOGIES</i> 89 , pp.205-221 Apr 2018	261
10	Zhao, WG; Zhang, ZX; Wang, LY	Manta ray foraging optimization: An effective bio-inspired optimizer for engineering applications	<i>ENGINEERING APPLICATIONS OF ARTIFICIAL INTELLIGENCE</i> 87 Jan 2020	260



## 4.10. University of California Berkeley

#	Autors	Articles	Revista	# Citacions
1	Campbell, KW; Bozorgnia, Y	NGA-West2 Ground Motion Model for the Average Horizontal Components of PGA, PGV, and 5% Damped Linear Acceleration Response Spectra	<i>EARTHQUAKE SPECTRA</i> 30 (3) , pp.1087-1115 Aug 2014	587
2	Milanes, V; Shladover, SE; Spring, J; Nowakowski, C; Kawazoe, H; Nakamura, M	Cooperative Adaptive Cruise Control in Real Traffic Situations	<i>IEEE TRANSACTIONS ON INTELLIGENT TRANSPORTATION SYSTEMS</i> 15 (1) , pp.296-305 Feb 2014	543
3	Rayle, L; Dai, D; Chan, N; Cervero, R; Shaheen, S	Just a better taxi? A survey-based comparison of taxis, transit, and ridesourcing services in San Francisco	<i>TRANSPORT POLICY</i> 45 , pp.168-178 Jan 2016	537
4	Scrivener, KL; Juilland, P; Monteiro, PJM	Advances in understanding hydration of Portland cement	<i>CEMENT AND CONCRETE RESEARCH</i> 78 , pp.38-56 Dec 2015	484
5	Yan, D; O'Brien, W; Hong, TZ; Feng, XH; Gunay, HB; Tahmasebi, F; Mahdavi, A	Occupant behavior modeling for building performance simulation: Current state and future challenges	<i>ENERGY AND BUILDINGS</i> 107 , pp.264-278 Nov 15 2015	480
6	Montanari, A; Young, G; Savenije, HHG; (et al.)	Panta Rhei-Everything Flows: Change in hydrology and society-The IAHS Scientific Decade 2013-2022	<i>HYDROLOGICAL SCIENCES JOURNAL-JOURNAL DES SCIENCES HYDROLOGIQUES</i> 58 (6) , pp.1256-1275 Aug 1 2013	447
7	Shladover, SE; Su, DY; Lu, XY	Impacts of Cooperative Adaptive Cruise Control on Freeway Traffic Flow	<i>TRANSPORTATION RESEARCH RECORD</i> (2324) , pp.63-70 2012	428
8	Kenney, M; Zysman, J	The Rise of the Platform Economy	<i>ISSUES IN SCIENCE AND TECHNOLOGY</i> 32 (3) , pp.61-69 Spr 2016	420
9	Milanes, V; Shladover, SE	Modeling cooperative and autonomous adaptive cruise control dynamic responses using experimental data	<i>TRANSPORTATION RESEARCH PART C-EMERGING TECHNOLOGIES</i> 48 , pp.285-300 Nov 2014	376
10	Chan, ND; Shaheen, SA	Ridesharing in North America: Past, Present, and Future	<i>TRANSPORT REVIEWS</i> 32 (1) , pp.93-112 2012	346



#### 4.11. UNAM – Universidad Nacional Autónoma de México

#	Autors	Articles	Revista	# Citacions
1	Mas, JF; Kolb, M; Paegelow, M; Olmedo, MTC; Houet, T	Inductive pattern-based land use/cover change models: A comparison of four software packages	<i>ENVIRONMENTAL MODELLING &amp; SOFTWARE</i> 51 , pp.94-111 Jan 2014	242
2	Polyakov, A; Fridman, L	Stability notions and Lyapunov functions for sliding mode control systems	<i>JOURNAL OF THE FRANKLIN INSTITUTE-ENGINEERING AND APPLIED MATHEMATICS</i> 351 (4) , pp.1831-1865 Apr 2014	223
3	Dillon, P; Stuyfzand, P; Grischek, T; (et al.)	Sixty years of global progress in managed aquifer recharge	<i>HYDROGEOLOGY JOURNAL</i> 27 (1) , pp.1-30 Feb 2019	168
4	Goldsmith, GR; Munoz-Villers, LE; Holwerda, F; McDonnell, JJ; Asbjornsen, H; Dawson, TE	Stable isotopes reveal linkages among ecohydrological processes in a seasonally dry tropical montane cloud forest	<i>ECOHYDROLOGY</i> 5 (6) , pp.779-790 Nov 2012	162
5	Perez-Vega, A; Mas, JF; Ligmann-Zielinska, A	Comparing two approaches to land use/cover change modeling and their implications for the assessment of biodiversity loss in a deciduous tropical forest	<i>ENVIRONMENTAL MODELLING &amp; SOFTWARE</i> 29 (1) , pp.11-23 Mar 2012	118
6	Munoz-Villers, LE; McDonnell, JJ	Runoff generation in a steep, tropical montane cloud forest catchment on permeable volcanic substrate	<i>WATER RESOURCES RESEARCH</i> 48 Sep 20 2012	103
7	Doll, P; Jimenez-Cisneros, B; (et al.)	Integrating risks of climate change into water management	<i>HYDROLOGICAL SCIENCES JOURNAL-JOURNAL DES SCIENCES HYDROLOGIQUES</i> 60 (1) , pp.4-13 Jan 2015	92
8	Munoz-Villers, LE; McDonnell, JJ	Land use change effects on runoff generation in a humid tropical montane cloud forest region	<i>HYDROLOGY AND EARTH SYSTEM SCIENCES</i> 17 (9) , pp.3543-3560 2013	83
9	Noyola, A; Padilla-Rivera, A; Morgan-Sagastume, JM; Guereca, LP; Hernandez-Padilla, F	Typology of Municipal Wastewater Treatment Technologies in Latin America	<i>CLEAN-SOIL AIR WATER</i> 40 (9) , pp.926-932 Sep 2012	83
10	Argatov, II; Guinovart-Diaz, R; Sabina, FJ	On local indentation and impact compliance of isotropic auxetic materials from the continuum mechanics viewpoint	<i>INTERNATIONAL JOURNAL OF ENGINEERING SCIENCE</i> 54 , pp.42-57 May 2012	78





#### 4.12. UFRJ – Universidade Federal do Rio de Janeiro

#	Autors	Articles	Revista	# Citacions
1	Junk, WJ; Piedade, MTF; Lourival, R; (et al.)	Brazilian wetlands: their definition, delineation, and classification for research, sustainable management, and protection	<i>AQUATIC CONSERVATION-MARINE AND FRESHWATER ECOSYSTEMS</i> 24 (1) , pp.5-22 Feb 2014	229
2	Bassin, JP; Kleerebezem, R; Dezotti, M; van Loosdrecht, MCM	Simultaneous nitrogen and phosphate removal in aerobic granular sludge reactors operated at different temperatures	<i>WATER RESEARCH</i> 58 , pp.162-177 Sep 2015	208
3	Toole, JL; Colak, S; Sturt, B; Alexander, LP; Evsukoff, A; Gonzalez, MC	The path most traveled: Travel demand estimation using big data resources	<i>TRANSPORTATION RESEARCH PART C-EMERGING TECHNOLOGIES</i> 46 (12) , pp.3805-3816 Aug 2012	224
4	Carneiro, JA; Lima, PRL; Leite, MB; Toledo, RD	Compressive stress-strain behavior of steel fiber reinforced-recycled aggregate concrete	<i>CEMENT &amp; CONCRETE COMPOSITES</i> 46 , pp.65-72 Feb 2014	184
5	Mechtcherine, V; Gorges, M; Schroefl, C; (et al.)	Effect of internal curing by using superabsorbent polymers (SAP) on autogenous shrinkage and other properties of a high-performance fine-grained concrete: results of a RILEM round-robin test	<i>MATERIALS AND STRUCTURES</i> 47 (3) , pp.541-562 Mar 2014	134
6	Melo, JD; Silva, FD; Toledo, RD	Degradation kinetics and aging mechanisms on sisal fiber cement composite systems	<i>CEMENT &amp; CONCRETE COMPOSITES</i> 40 , pp.30-39 Jul 2013	115
7	Najjar, M; Figueiredo, K; Palumbo, M; Haddad, A	Integration of BIM and LCA: Evaluating the environmental impacts of building materials at an early stage of designing a typical office building	<i>JOURNAL OF BUILDING ENGINEERING</i> 14 , pp.115-126 Nov 2017	108
8	Ferreira, SR; Silva, FD; Lima, PRL; Toledo, RD	Effect of fiber treatments on the sisal fiber properties and fiber-matrix bond in cement based systems	<i>CONSTRUCTION AND BUILDING MATERIALS</i> 101 , pp.730-740 Dec 30 2015	93
9	Bertilsson, L; Wiklund, K; Tebaldi, ID; Rezende, OM; Verol, AP; Miguez, MG	Urban flood resilience - A multi-criteria index to integrate flood resilience into urban planning	<i>JOURNAL OF HYDROLOGY</i> 573 , pp.970-982 Jun 2019	92
10	Mechtcherine, V; Silva, FD; Muller, S; Jun, P; Toledo, RD	Coupled strain rate and temperature effects on the tensile behavior of strain-hardening cement-based composites (SHCC) with PVA fibers	<i>CEMENT AND CONCRETE RESEARCH</i> 42 (11) , pp.1417-1427 Nov 2012	90



### 4.13. USP - Universidade de São Paulo

#	Autors	Articles	Revista	# Citacions
1	Scrivener, KL; John, VM; Gartner, EM	Eco-efficient cements: Potential economically viable solutions for a low-CO2 cement-based materials industry	<i>CEMENT AND CONCRETE RESEARCH</i> 114 , pp.2-26 Dec 2018	624
2	Klove, B; Ala-Aho, P; Bertrand, G; (et al.)	Climate change impacts on groundwater and dependent ecosystems	<i>JOURNAL OF HYDROLOGY</i> 518 , pp.250-266 Oct 10 2014	306
3	Junk, WJ; Piedade, MTF; Lourival, R; (et al.)	Brazilian wetlands: their definition, delineation, and classification for research, sustainable management, and protection	<i>AQUATIC CONSERVATION-MARINE AND FRESHWATER ECOSYSTEMS</i> 24 (1) , pp.5-22 Feb 2014	229
4	Miller, SA; John, VM; Pacca, SA; Horvath, A	Carbon dioxide reduction potential in the global cement industry by 2050	<i>CEMENT AND CONCRETE RESEARCH</i> 114 , pp.115-124 Dec 2018	185
5	Silva, PPGE; Nobre, CR; Resaffe, P; Pereira, CDS; Gusmao, F	Leachate from microplastics impairs larval development in brown mussels	<i>WATER RESEARCH</i> 106 , pp.364-370 Dec 1 2016	163
6	Hata, AY; Wolf, DF	Feature Detection for Vehicle Localization in Urban Environments Using a Multilayer LIDAR	<i>IEEE TRANSACTIONS ON INTELLIGENT TRANSPORTATION SYSTEMS</i> 17 (2) , pp.420-429 Feb 2016	126
7	Oliveira, PTS; Nearing, MA; Moran, MS; Goodrich, DC; Wendland, E; Gupta, HV	Trends in water balance components across the Brazilian Cerrado	<i>WATER RESOURCES RESEARCH</i> 50 (9) , pp.7100-7114 Sep 2014	115
8	Salvador, RP; Cavalaro, SHP; Segura, I; Figueiredo, AD; Perez, J	Early age hydration of cement pastes with alkaline and alkali-free accelerators for sprayed concrete	<i>CONSTRUCTION AND BUILDING MATERIALS</i> 111 , pp.386-398 May 15 2016	111
9	de Mello, K; Valente, RA; Randhir, TO; dos Santos, ACA; Vettorazzi, CA	Effects of land use and land cover on water quality of low-order streams in Southeastern Brazil: Watershed versus riparian zone	<i>CATENA</i> 167 , pp.130-138 Aug 2018	109
10	Peren, JI; van Hooff, T; Leite, BCC; Blocken, B	CFD analysis of cross-ventilation of a generic isolated building with asymmetric opening positions: Impact of roof angle and opening location	<i>BUILDING AND ENVIRONMENT</i> 85 , pp.263-276 Feb 2015	107



#### 4.14. ULisboa - Universidade de Lisboa / UTL

#	Autors	Articles	Revista	# Citacions
1	Weedon, GP; Balsamo, G; Bellouin, N; Gomes, S; Best, MJ; Viterbo, P	The WFDEI meteorological forcing data set: WATCH Forcing Data methodology applied to ERA-Interim reanalysis data	<i>WATER RESOURCES RESEARCH</i> 50 (9) , pp.7505-7514 Sep 2014	653
2	Silva, RV; de Brito, J; Dhir, RK	Properties and composition of recycled aggregates from construction and demolition waste suitable for concrete production	<i>CONSTRUCTION AND BUILDING MATERIALS</i> 65 , pp.201-217 Aug 29 2014	541
3	Neves, AMA; Ferreira, AJM; Carrera, E; Cinefra, M; Roque, CMC; Jorge, RMN; Soares, CMM	Static, free vibration and buckling analysis of isotropic and sandwich functionally graded plates using a quasi-3D higher-order shear deformation theory and a meshless technique	<i>COMPOSITES PART B-ENGINEERING</i> 44 (1) , pp.657-674 Jan 2013	392
4	Neves, AMA; Ferreira, AJM; Carrera, E; Roque, CMC; Cinefra, M; Jorge, RMN; Soares, CMM	A quasi-3D sinusoidal shear deformation theory for the static and free vibration analysis of functionally graded plates	<i>COMPOSITES PART B-ENGINEERING</i> 43 (2) , pp.711-725 Mar 2012	301
5	Ferreira, PM; Ruano, AE; Silva, S; Conceicao, EZE	Neural networks based predictive control for thermal comfort and energy savings in public buildings	<i>ENERGY AND BUILDINGS</i> 55 , pp.238-251 Dec 2012	270
6	Bloschl, G; Bierkens, MFP; Chambel, A; (et al.)	Twenty-three unsolved problems in hydrology (UPH) - a community perspective	<i>HYDROLOGICAL SCIENCES JOURNAL</i> 64 (10) , pp.1141-1158 Jul 27 2019	263
7	Pereira, LS; Cordery, I; Iacovides, I	Improved indicators of water use performance and productivity for sustainable water conservation and saving	<i>AGRICULTURAL WATER MANAGEMENT</i> 108 , pp.39-51 May 15 2012	245
8	Gaffney, VD; Almeida, CMM; Rodrigues, A; Ferreira, E; Benoliel, MJ; Cardoso, VV	Occurrence of pharmaceuticals in a water supply system and related human health risk assessment	<i>WATER RESEARCH</i> 72 , pp.199-208 Apr 1 2015	236
9	Mantari, JL; Oktem, AS; Soares, CG	A new higher order shear deformation theory for sandwich and composite laminated plates	<i>COMPOSITES PART B-ENGINEERING</i> 43 (3) , pp.1489-1499 Apr 2012	231
10	Oliveira, H; Correia, PL	Automatic Road Crack Detection and Characterization	<i>IEEE TRANSACTIONS ON INTELLIGENT TRANSPORTATION SYSTEMS</i> 14 (1) , pp.155-168 Mar 2013	225



#### 4.15. UPM - Universidad Politécnica de Madrid

#	Autors	Articles	Revista	# Citacions
1	Corominas, J; van Westen, C; Frattini, P; (et al.)	Recommendations for the quantitative analysis of landslide risk	<i>BULLETIN OF ENGINEERING GEOLOGY AND THE ENVIRONMENT</i> 73 (2) , pp.209-263 May 2014	567
2	Hall, J; Arheimer, B; Borga, M; (et al.)	Understanding flood regime changes in Europe: a state-of-the-art assessment	<i>HYDROLOGY AND EARTH SYSTEM SCIENCES</i> 18 (7) , pp.2735-2772 2014	328
3	Ai, B; Cheng, X; Kurner, T; Zhong, ZD; Guan, K; He, RS; Xiong, L; Matolak, DW; Michelson, DG; Briso-Rodriguez, C	Challenges Toward Wireless Communications for High-Speed Railway	<i>IEEE TRANSACTIONS ON INTELLIGENT TRANSPORTATION SYSTEMS</i> 15 (5) , pp.2143-2158 Oct 2014	310
4	He, RS; Ai, B; Wang, GP; Guan, K; Zhong, ZD; Molisch, AF; Briso-Rodriguez, C; Oestges, C	High-Speed Railway Communications: From GSM-R to LTE-R	<i>IEEE VEHICULAR TECHNOLOGY MAGAZINE</i> 11 (3) , pp.49-58 Sep 2016	170
5	Salazar, F; Moran, R; Toledo, MA; Onate, E	Data-Based Models for the Prediction of Dam Behaviour: A Review and Some Methodological Considerations	<i>ARCHIVES OF COMPUTATIONAL METHODS IN ENGINEERING</i> 24 (1) , pp.1-21 Jan 2017	151
6	Pastor, M; Blanc, T; Haddad, B; Petrone, S; Morles, MS; Drempevic, V; Issler, D; Crosta, GB; Cascini, L; Sorbino, G; Cuomo, S	Application of a SPH depth-integrated model to landslide run-out analysis	<i>LANDSLIDES</i> 11 (5) , pp.793-812 Oct 2014	146
7	Fernandez-Heredia, A; Monzon, A; Jara-Diaz, S	Understanding cyclists' perceptions, keys for a successful bicycle promotion	<i>TRANSPORTATION RESEARCH PART A-POLICY AND PRACTICE</i> 63 , pp.1-11 May 2014	137
8	Gallego, J; del Val, MA; Contreras, V; Paez, A	Heating asphalt mixtures with microwaves to promote self-healing	<i>CONSTRUCTION AND BUILDING MATERIALS</i> May 42 , pp.1-4 2013	122
9	Gurnell, AM; Corenblit, D; De Jalon, DG; Del Tanago, MG; Grabowski, RC; O'Hare, MT; Szewczyk, M	A Conceptual Model of Vegetation-hydrogeomorphology Interactions Within River Corridors	<i>RIVER RESEARCH AND APPLICATIONS</i> 32 (2) , pp.142-163 Feb 2016	117
10	Alberti, MG; Enfedaque, A; Galvez, JC	On the mechanical properties and fracture behavior of polyolefin fiber-reinforced self-compacting concrete	<i>CONSTRUCTION AND BUILDING MATERIALS</i> 55 , pp.274-288 Mar 31 2014	116



#### 4.16. UPV - Universitat Politècnica de València

#	Autors	Articles	Revista	# Citacions
1	Klove, B; Ala-Aho, P; Bertrand, G; (et al.)	Climate change impacts on groundwater and dependent ecosystems	<i>JOURNAL OF HYDROLOGY</i> 518 , pp.250-266 Oct 10 2014	306
2	Delgado, A; Romero, I	Environmental conflict analysis using an integrated grey clustering and entropy-weight method: A case study of a mining project in Peru	<i>ENVIRONMENTAL MODELLING &amp; SOFTWARE</i> 77 , pp.108-121 Mar 2016	232
3	Lopez, J; Frances, F	Non-stationary flood frequency analysis in continental Spanish rivers, using climate and reservoir indices as external covariates	<i>HYDROLOGY AND EARTH SYSTEM SCIENCES</i> 17 (8) , pp.3189-3203 2013	190
4	Reig, L; Tashima, MM; Borrachero, MV; Monzo, J; Cheeseman, CR; Paya, J	Properties and microstructure of alkali-activated red clay brick waste	<i>CONSTRUCTION AND BUILDING MATERIALS</i> 43 , pp.98-106 Jun 2013	158
5	Roig-Flores, M; Moscato, S; Serna, P; Ferrara, L	Self-healing capability of concrete with crystalline admixtures in different environments	<i>CONSTRUCTION AND BUILDING MATERIALS</i> 86 , pp.1-11 Jul 1 2015	146
6	Roig-Flores, M; Pirritano, F; Serna, P; Ferrara, L	Effect of crystalline admixtures on the self-healing capability of early-age concrete studied by means of permeability and crack closing tests	<i>CONSTRUCTION AND BUILDING MATERIALS</i> Jul 1 114 , pp.447-457 2016	142
7	Keesstra, SD; Rodrigo-Comino, J; Novara, A; Gimenez-Morera, A; Pulido, M; Di Prima, S; Cerda, A	Straw mulch as a sustainable solution to decrease runoff and erosion in glyphosate-treated clementine plantations in Eastern Spain. An assessment using rainfall simulation experiments	<i>CATENA</i> 174 , pp.95-103 Mar 2019	128
8	Bardi, M; Payri, R; Malbec, LM; Bruneaux, G; Pickett, LM; Manin, J; Bazyn, T; Genzale, C	Engine combustion network: comparison of spray development, vaporization, and combustion in different combustion vessels	<i>ATOMIZATION AND SPRAYS</i> 22 (10) , pp.807-842 2012	115
9	Aouni, A; Fersi, C; Cuartas-Urbe, B; Bes-Pia, A; Alcaina-Miranda, MI; Dhahbi, M	Reactive dyes rejection and textile effluent treatment study using ultrafiltration and nanofiltration processes	<i>DESALINATION</i> 297 , pp.87-96 Jul 3 2012	109
10	Estrela, T; Perez-Martin, MA; Vargas, E	Impacts of climate change on water resources in Spain	<i>HYDROLOGICAL SCIENCES JOURNAL-JOURNAL DES SCIENCES HYDROLOGIQUES</i> 57 (6) , pp.1154-1167 2012	107



## 5. Revistes on més publiquen els professors

Les següents taules mostren, universitat a universitat, els títols de les revistes, indexades al *Web of Science*, on més publiquen els professors<sup>13</sup>.

Per a cada institució es donen els 25 títols de revista on més publiquen els autors, excepte per a la UPC on es detallen els 50 títols de revista on més es publica.

S'acaba l'apartat amb la llista de les revistes que apareixen 10 o més vegades en aquestes taules i amb la llista unificada dels 25 títols de revista en els quals s'han publicat més articles sumant el conjunt de les universitats.

### 5.1. Taules de revistes amb major nombre d'articles per a cada universitat

#### 5.1.1. UPC - Universitat Politècnica de Catalunya

Revista	# Articles	% sobre el total (2723)
CONSTRUCTION AND BUILDING MATERIALS	159	5,89%
COMPUTER METHODS IN APPLIED MECHANICS AND ENGINEERING	132	4,84%
APPLIED SCIENCES BASEL	110	4,04%
ENGINEERING STRUCTURES	84	3,08%
INTERNATIONAL JOURNAL FOR NUMERICAL METHODS IN ENGINEERING	83	3,04%
WATER	53	1,94%
REVISTA INTERNACIONAL DE METODOS NUMERICOS PARA CALCULO Y DISENO EN INGENIERIA	47	1,72%
JOURNAL OF HYDROLOGY	46	1,68%
ENERGY AND BUILDINGS	41	1,50%
WATER RESOURCES RESEARCH	38	1,39%
JOURNAL OF THE FRANKLIN INSTITUTE ENGINEERING AND APPLIED MATHEMATICS	36	1,32%
IEEE TRANSACTIONS ON VEHICULAR TECHNOLOGY	35	1,28%
DESALINATION AND WATER TREATMENT	34	1,24%

<sup>13</sup>. - Bases de dades consultades durant l'octubre de 2022.





Revista	# Articles	% sobre el total (2723)
INTERNATIONAL JOURNAL OF ENGINEERING EDUCATION	34	1,24%
INFORMES DE LA CONSTRUCCION	31	1,13%
COMPUTERS AND GEOTECHNICS	30	1,10%
ENGINEERING GEOLOGY	29	1,06%
WATER RESEARCH	29	1,06%
GEOTECHNIQUE	28	1,02%
MATERIALS AND STRUCTURES	27	0,99%
ADVANCES IN WATER RESOURCES	26	0,95%
NATURAL HAZARDS	26	0,95%
COASTAL ENGINEERING	25	0,91%
INTERNATIONAL JOURNAL OF ARCHITECTURAL HERITAGE	24	0,88%
MATHEMATICAL PROBLEMS IN ENGINEERING	24	0,88%
NATURAL HAZARDS AND EARTH SYSTEM SCIENCES	24	0,88%
STRUCTURE AND INFRASTRUCTURE ENGINEERING	24	0,88%
MEASUREMENT	23	0,84%
THIN WALLED STRUCTURES	23	0,84%
INTERNATIONAL JOURNAL FOR NUMERICAL AND ANALYTICAL METHODS IN GEOMECHANICS	22	0,80%
JOURNAL OF CONSTRUCTIONAL STEEL RESEARCH	22	0,80%
STRUCTURAL CONCRETE	22	0,80%
STRUCTURAL CONTROL HEALTH MONITORING	22	0,80%
TUNNELLING AND UNDERGROUND SPACE TECHNOLOGY	21	0,77%



Revista	# Articles	% sobre el total (2723)
COMPOSITES PART B ENGINEERING	20	0,73%
DESALINATION	20	0,73%
LANDSLIDES	20	0,73%
CEMENT CONCRETE COMPOSITES	19	0,69%
ENGINEERING APPLICATIONS OF ARTIFICIAL INTELLIGENCE	18	0,66%
IEEE TRANSACTIONS ON INDUSTRY APPLICATIONS	18	0,66%
APPLIED MATHEMATICAL MODELLING	17	0,62%
CEMENT AND CONCRETE RESEARCH	17	0,62%
DYNA	17	0,62%
WATER SCIENCE AND TECHNOLOGY	17	0,62%
CANADIAN GEOTECHNICAL JOURNAL	16	0,58%
COMPUTER APPLICATIONS IN ENGINEERING EDUCATION	16	0,58%
COMPUTERS STRUCTURES	16	0,58%
MEASUREMENT SCIENCE AND TECHNOLOGY	16	0,58%
TRANSPORTATION RESEARCH PART C EMERGING TECHNOLOGIES	16	0,58%
ENVIRONMENTAL MODELLING SOFTWARE	15	0,55%





### 5.1.2. EPFL - Ecole Polytechnique Fédérale de Lausanne

Revista	# Articles	% sobre el total (1487)
CEMENT AND CONCRETE RESEARCH	113	7,59%
ENGINEERING STRUCTURES	93	6,25%
COMPUTER METHODS IN APPLIED MECHANICS AND ENGINEERING	65	4,37%
CONSTRUCTION AND BUILDING MATERIALS	48	3,22%
TRANSPORTATION RESEARCH PART B METHODOLOGICAL	44	2,95%
JOURNAL OF STRUCTURAL ENGINEERING	37	2,48%
ENERGY AND BUILDINGS	34	2,28%
TRANSPORTATION RESEARCH PART C EMERGING TECHNOLOGIES	34	2,28%
JOURNAL OF HYDRAULIC ENGINEERING	32	2,15%
BUILDING AND ENVIRONMENT	30	2,01%
JOURNAL OF HYDRAULIC RESEARCH	28	1,88%
ROCK MECHANICS AND ROCK ENGINEERING	28	1,88%
MATERIALS AND STRUCTURES	26	1,74%
APPLIED SCIENCES BASEL	25	1,68%
JOURNAL OF HYDROLOGY	24	1,61%
COMPUTERS AND GEOTECHNICS	23	1,54%
STRUCTURAL CONCRETE	23	1,54%
COMPOSITES PART B ENGINEERING	21	1,41%
IEEE TRANSACTIONS ON INDUSTRY APPLICATIONS	20	1,345%
INTERNATIONAL JOURNAL FOR NUMERICAL METHODS IN ENGINEERING	19	1,27%
BULLETIN OF EARTHQUAKE ENGINEERING	18	1,21%
EARTHQUAKE ENGINEERING STRUCTURAL DYNAMICS	18	1,21%
TUNNELLING AND UNDERGROUND SPACE TECHNOLOGY	17	1,14%
ANALYSIS AND DESIGN OF ENERGY GEOSTRUCTURES THEORETICAL ESSENTIALS AND PRACTICAL APPLICATION	16	1,07%
IEEE TRANSACTIONS ON INTELLIGENT TRANSPORTATION SYSTEMS	15	1,00%



### 5.1.3. Imperial College London

Revista	# Articles	% sobre el total (2459)
ENGINEERING STRUCTURES	124	5,04%
JOURNAL OF CONSTRUCTIONAL STEEL RESEARCH	76	3,09%
WATER RESOURCES RESEARCH	74	3,09%
GEOTECHNIQUE	69	2,80%
THIN WALLED STRUCTURES	66	2,68%
WATER RESEARCH	56	2,27%
COMBUSTION AND FLAME	48	1,95%
TRANSPORTATION RESEARCH RECORD	45	1,83%
ADVANCES IN WATER RESOURCES	44	1,78%
APPLIED SCIENCES BASEL	43	1,74%
COMPUTERS AND GEOTECHNICS	43	1,74%
COMPUTER METHODS IN APPLIED MECHANICS AND ENGINEERING	42	1,70%
STRUCTURES	38	1,54%
IEEE TRANSACTIONS ON VEHICULAR TECHNOLOGY	37	1,50%
CONSTRUCTION AND BUILDING MATERIALS	35	1,42%
TRANSPORTATION RESEARCH PART C EMERGING TECHNOLOGIES	32	1,30%
CEMENT AND CONCRETE RESEARCH	31	1,26%
BULLETIN OF EARTHQUAKE ENGINEERING	30	1,22%
JOURNAL OF HYDROLOGY	29	1,17%
INTERNATIONAL JOURNAL FOR NUMERICAL METHODS IN ENGINEERING	28	1,13%
HYDROLOGY AND EARTH SYSTEM SCIENCES	24	0,97%
JOURNAL OF STRUCTURAL ENGINEERING	24	0,97%
INTERNATIONAL JOURNAL OF ROCK MECHANICS AND MINING SCIENCES	23	0,93%
COMPUTERS STRUCTURES	22	0,89%
EARTHQUAKE ENGINEERING STRUCTURAL DYNAMICS	20	0,81%



#### 5.1.4. TUDelft - Technische Universiteit Delft

Revista	# Articles	% sobre el total (5609)
WATER RESEARCH	243	43,32%
CONSTRUCTION AND BUILDING MATERIALS	210	37,44%
TRANSPORTATION RESEARCH RECORD	200	35,66%
HYDROLOGY AND EARTH SYSTEM SCIENCES	164	29,24%
TRANSPORTATION RESEARCH PART C EMERGING TECHNOLOGIES	142	25,32%
WATER	126	22,46%
COASTAL ENGINEERING	99	17,65%
OCEAN ENGINEERING	98	17,47%
WATER RESOURCES RESEARCH	91	16,22%
ENGINEERING STRUCTURES	78	13,91%
IEEE TRANSACTIONS ON INTELLIGENT TRANSPORTATION SYSTEMS	78	13,91%
COMPUTER METHODS IN APPLIED MECHANICS AND ENGINEERING	76	13,55%
TRANSPORTATION RESEARCH PART A POLICY AND PRACTICE	71	12,66%
WATER SCIENCE AND TECHNOLOGY	69	12,30%
APPLIED SCIENCES BASEL	61	10,88%
ADVANCES IN WATER RESOURCES	56	0,99%
TRANSPORTATION RESEARCH PART F TRAFFIC PSYCHOLOGY AND BEHAVIOUR	56	0,99%
CEMENT AND CONCRETE RESEARCH	52	0,92%
SCIENCE AND ENGINEERING ETHICS	52	0,92%
ENVIRONMENTAL MODELLING SOFTWARE	46	0,82%
EUROPEAN JOURNAL OF TRANSPORT AND INFRASTRUCTURE RESEARCH	46	0,82%
INTERNATIONAL JOURNAL FOR NUMERICAL METHODS IN ENGINEERING	46	0,82%
INTERNATIONAL JOURNAL OF DESIGN	45	0,80%
TRANSPORTATION RESEARCH PART B METHODOLOGICAL	45	0,80%
MATERIALS AND STRUCTURES	43	0,76%



### 5.1.5. ETHZ – Swiss Federal Institute of Technology Zurich

Revista	# Articles	% sobre el total (2946)
WATER RESOURCES RESEARCH	185	6,28%
WATER RESEARCH	142	4,82%
HYDROLOGY AND EARTH SYSTEM SCIENCES	112	3,80%
CEMENT AND CONCRETE RESEARCH	77	2,61%
ENGINEERING STRUCTURES	65	2,20%
TRANSPORTATION RESEARCH RECORD	65	2,20%
JOURNAL OF HYDROLOGY	54	1,83%
TRANSPORTATION RESEARCH PART C EMERGING TECHNOLOGIES	54	1,83%
BUILDING AND ENVIRONMENT	51	1,73%
ENERGY AND BUILDINGS	49	1,66%
CONSTRUCTION AND BUILDING MATERIALS	44	1,49%
ADVANCES IN WATER RESOURCES	39	1,32%
ENVIRONMENTAL MODELLING SOFTWARE	39	1,32%
JOURNAL OF HYDRAULIC RESEARCH	39	1,32%
APPLIED SCIENCES BASEL	35	1,18%
MATERIALS AND STRUCTURES	35	1,18%
ROCK MECHANICS AND ROCK ENGINEERING	35	1,18%
NATURAL HAZARDS AND EARTH SYSTEM SCIENCES	34	1,15%
WATER	34	1,15%
COMBUSTION AND FLAME	33	1,12%
COMPUTER METHODS IN APPLIED MECHANICS AND ENGINEERING	32	1,08%
HYDROLOGICAL PROCESSES	30	1,01%
EARTHQUAKE ENGINEERING STRUCTURAL DYNAMICS	29	0,98%
TRANSPORTATION RESEARCH PART A POLICY AND PRACTICE	29	0,98%
GEOTECHNIQUE	28	0,95%



**5.1.6. École des Ponts ParisTech – (ENPC / LCPC / IFSSTAR / Univ Gustave-Eiffel –/ Laboratoire Central des Ponts et Chaussées / Institut français des sciences et technologies des transports, de l'aménagement et des réseaux / Université Gustave-Eiffel)**

Revista	# Articles	% sobre el total (1915)
CONSTRUCTION AND BUILDING MATERIALS	127	4,75%
CEMENT AND CONCRETE RESEARCH	121	4,52%
ACCIDENT ANALYSIS AND PREVENTION	88	3,29%
ENGINEERING GEOLOGY	86	3,21%
TRANSPORTATION RESEARCH RECORD	66	2,46%
BULLETIN OF EARTHQUAKE ENGINEERING	51	1,90%
MATERIALS AND STRUCTURES	49	1,83%
TRANSPORTATION RESEARCH PART F TRAFFIC PSYCHOLOGY AND BEHAVIOUR	49	1,83%
COMPUTER METHODS IN APPLIED MECHANICS AND ENGINEERING	46	1,72%
TRANSPORTATION RESEARCH PART C EMERGING TECHNOLOGIES	46	1,72%
EUROPEAN JOURNAL OF ENVIRONMENTAL AND CIVIL ENGINEERING	45	1,68%
INTERNATIONAL JOURNAL FOR NUMERICAL AND ANALYTICAL METHODS IN GEOMECHANICS	45	1,68%
ENGINEERING STRUCTURES	42	1,57%
INTERNATIONAL JOURNAL FOR NUMERICAL METHODS IN ENGINEERING	42	1,57%
TRANSPORTATION RESEARCH PART D TRANSPORT AND ENVIRONMENT	41	1,53%
JOURNAL OF HYDROLOGY	40	1,49%
ROAD MATERIALS AND PAVEMENT DESIGN	37	1,38%
WATER RESEARCH	35	1,30%
ACTA GEOTECHNICA	32	1,19%
COMPUTERS AND GEOTECHNICS	32	1,19%
CANADIAN GEOTECHNICAL JOURNAL	31	1,16%
IEEE TRANSACTIONS ON INTELLIGENT TRANSPORTATION SYSTEMS	31	1,16%
WATER RESOURCES RESEARCH	31	1,16%
CEMENT CONCRETE COMPOSITES	30	1,12%
SOIL DYNAMICS AND EARTHQUAKE ENGINEERING	29	1,08%



### 5.1.7. Stanford University

Revista	# Articles	% sobre el total (1597)
COMBUSTION AND FLAME	125	7,82%
WATER RESOURCES RESEARCH	124	7,76%
COMPUTER METHODS IN APPLIED MECHANICS AND ENGINEERING	75	4,69%
WATER RESEARCH	63	3,94%
INTERNATIONAL JOURNAL FOR NUMERICAL METHODS IN ENGINEERING	55	3,44%
ADVANCES IN WATER RESOURCES	51	3,19%
EARTHQUAKE SPECTRA	51	3,19%
EARTHQUAKE ENGINEERING STRUCTURAL DYNAMICS	36	2,25%
APPLIED SCIENCES BASEL	28	1,75%
JOURNAL OF HYDROLOGY	28	1,75%
JOURNAL OF STRUCTURAL ENGINEERING	26	1,62%
INTERNATIONAL JOURNAL OF ENGINEERING EDUCATION	21	1,31%
ENVIRONMENTAL SCIENCE WATER RESEARCH TECHNOLOGY	20	1,25%
AUTOMATION IN CONSTRUCTION	17	1,06%
BUILDING AND ENVIRONMENT	17	1,06%
IEEE TRANSACTIONS ON VEHICULAR TECHNOLOGY	17	1,06%
IEEE TRANSACTIONS ON INTELLIGENT TRANSPORTATION SYSTEMS	16	1,00%
MEASUREMENT SCIENCE AND TECHNOLOGY	16	1,00%
INTERNATIONAL JOURNAL FOR NUMERICAL AND ANALYTICAL METHODS IN GEOMECHANICS	15	0,93%
STRUCTURAL HEALTH MONITORING AN INTERNATIONAL JOURNAL	15	0,93%
ENGINEERING STRUCTURES	14	0,87%
ENERGY AND BUILDINGS	13	0,81%
ENVIRONMENTAL MODELLING SOFTWARE	13	0,81%
INTERNATIONAL JOURNAL OF ROCK MECHANICS AND MINING SCIENCES	13	0,81%
JOURNAL OF CONSTRUCTION ENGINEERING AND MANAGEMENT	13	0,81%



### 5.1.8. TAMU - Texas A&M University

Revista	# Articles	% sobre el total (4340)
TRANSPORTATION RESEARCH RECORD	452	10,41%
JOURNAL OF HYDROLOGY	214	4,93%
CONSTRUCTION AND BUILDING MATERIALS	164	3,77%
WATER	109	2,51%
WATER RESOURCES RESEARCH	82	1,88%
JOURNAL OF HYDROLOGIC ENGINEERING	76	1,75%
APPLIED SCIENCES BASEL	68	1,56%
AGRICULTURAL WATER MANAGEMENT	64	1,47%
INTERNATIONAL JOURNAL OF PAVEMENT ENGINEERING	61	1,40%
JOURNAL OF MATERIALS IN CIVIL ENGINEERING	60	1,38%
OCEAN ENGINEERING	60	1,38%
ACCIDENT ANALYSIS AND PREVENTION	50	1,15%
COMBUSTION AND FLAME	50	1,15%
HYDROLOGICAL PROCESSES	46	1,06%
JOURNAL OF THE AMERICAN WATER RESOURCES ASSOCIATION	45	1,03%
ENERGY AND BUILDINGS	44	1,01%
COMPUTER METHODS IN APPLIED MECHANICS AND ENGINEERING	43	0,99%
WATER RESEARCH	41	0,94%
WATER RESOURCES MANAGEMENT	40	0,92%
NATURAL HAZARDS	39	0,89%
COMPOSITES PART B ENGINEERING	38	0,87%
ENVIRONMENTAL MODELLING SOFTWARE	38	0,87%
IEEE TRANSACTIONS ON VEHICULAR TECHNOLOGY	37	0,85%
ENGINEERING STRUCTURES	36	0,82%
JOURNAL OF CONSTRUCTION ENGINEERING AND MANAGEMENT	35	0,80%



### 5.1.9. UI - University of Illinois at Urbana-Champaign

Revista	# Articles	% sobre el total (2676)
TRANSPORTATION RESEARCH RECORD	184	6,87%
WATER RESOURCES RESEARCH	140	5,23%
CONSTRUCTION AND BUILDING MATERIALS	78	2,91%
COMPUTER METHODS IN APPLIED MECHANICS AND ENGINEERING	63	2,35%
WATER RESEARCH	61	2,28%
ENGINEERING STRUCTURES	60	2,24%
JOURNAL OF STRUCTURAL ENGINEERING	56	2,09%
JOURNAL OF HYDROLOGY	46	1,71%
INTERNATIONAL JOURNAL FOR NUMERICAL METHODS IN ENGINEERING	44	1,64%
STRUCTURAL AND MULTIDISCIPLINARY OPTIMIZATION	42	1,57%
HYDROLOGY AND EARTH SYSTEM SCIENCES	41	1,53%
JOURNAL OF SOIL AND WATER CONSERVATION	40	1,49%
COMBUSTION AND FLAME	37	1,38%
JOURNAL OF GEOTECHNICAL AND GEOENVIRONMENTAL ENGINEERING	36	1,34%
TRANSPORTATION RESEARCH PART B METHODOLOGICAL	36	1,34%
JOURNAL OF COMPUTING IN CIVIL ENGINEERING	33	1,23%
INTERNATIONAL JOURNAL OF PAVEMENT ENGINEERING	32	1,19%
JOURNAL OF WATER RESOURCES PLANNING AND MANAGEMENT	30	1,12%
WATER	30	1,12%
JOURNAL OF MATERIALS IN CIVIL ENGINEERING	29	1,08%
PROCEEDINGS OF THE INSTITUTION OF MECHANICAL ENGINEERS PART F JOURNAL OF RAIL AND RAPID TRANSIT	29	1,08%
AUTOMATION IN CONSTRUCTION	28	1,04%
SMART STRUCTURES AND SYSTEMS	28	1,04%
APPLIED SCIENCES BASEL	27	1,00%
COMPUTER AIDED CIVIL AND INFRASTRUCTURE ENGINEERING	27	1,00%





### 5.1.10. University of California Berkeley

Revista	# Articles	% sobre el total (2958)
WATER RESOURCES RESEARCH	143	4,83%
BUILDING AND ENVIRONMENT	136	4,59%
TRANSPORTATION RESEARCH RECORD	130	4,39%
ENERGY AND BUILDINGS	108	3,65%
IEEE TRANSACTIONS ON INTELLIGENT TRANSPORTATION SYSTEMS	73	2,46%
TRANSPORTATION RESEARCH PART C EMERGING TECHNOLOGIES	71	2,40%
EARTHQUAKE SPECTRA	66	2,23%
EARTHQUAKE ENGINEERING STRUCTURAL DYNAMICS	59	1,99%
TRANSPORTATION RESEARCH PART B METHODOLOGICAL	57	1,92%
INDOOR AIR	52	1,75%
CEMENT AND CONCRETE RESEARCH	47	1,58%
COMBUSTION AND FLAME	46	1,55%
WATER RESEARCH	45	1,52%
COMPUTER METHODS IN APPLIED MECHANICS AND ENGINEERING	42	1,42%
JOURNAL OF GEOTECHNICAL AND GEOENVIRONMENTAL ENGINEERING	39	1,31%
JOURNAL OF HYDROLOGY	38	1,28%
ENGINEERING STRUCTURES	36	1,21%
CONSTRUCTION AND BUILDING MATERIALS	35	1,18%
HYDROLOGY AND EARTH SYSTEM SCIENCES	35	1,18%
TRANSPORTATION RESEARCH PART A POLICY AND PRACTICE	35	1,18%
JOURNAL OF STRUCTURAL ENGINEERING	34	1,14%
SOIL DYNAMICS AND EARTHQUAKE ENGINEERING	34	1,14%
WATER	34	1,14%
ADVANCES IN WATER RESOURCES	30	1,01%
IEEE TRANSACTIONS ON VEHICULAR TECHNOLOGY	25	0,84%



### 5.1.11. UNAM – Universidad Nacional Autónoma de México

Revista	# Articles	% sobre el total (1364)
TECNOLOGIA Y CIENCIAS DEL AGUA	71	5,20%
APPLIED SCIENCES BASEL	55	4,03%
WATER	51	3,73%
WATER AIR AND SOIL POLLUTION	46	3,37%
ENVIRONMENTAL EARTH SCIENCES	45	3,29%
NATURAL HAZARDS	45	3,29%
WATER SCIENCE AND TECHNOLOGY	45	3,29%
SOIL DYNAMICS AND EARTHQUAKE ENGINEERING	44	3,22%
ENGINEERING STRUCTURES	32	2,34%
EARTHQUAKE SPECTRA	31	2,27%
CATENA	30	2,19%
OCEAN COASTAL MANAGEMENT	27	1,97%
NATURAL HAZARDS AND EARTH SYSTEM SCIENCES	22	1,61%
MATHEMATICAL PROBLEMS IN ENGINEERING	20	1,46%
CONSTRUCTION AND BUILDING MATERIALS	19	1,39%
DESALINATION AND WATER TREATMENT	17	1,24%
HYDROGEOLOGY JOURNAL	17	1,24%
COASTAL ENGINEERING	16	1,17%
JOURNAL OF EARTHQUAKE ENGINEERING	16	1,17%
ENVIRONMENTAL GEOCHEMISTRY AND HEALTH	14	1,02%
INTERNATIONAL JOURNAL OF ENGINEERING SCIENCE	14	1,02%
JOURNAL OF THE FRANKLIN INSTITUTE ENGINEERING AND APPLIED MATHEMATICS	14	1,02%
BULLETIN OF EARTHQUAKE ENGINEERING	13	0,95%
LANDSLIDES	13	0,95%
OCEAN ENGINEERING	12	0,88%



### 5.1.12. UFRJ – Universidade Federal do Rio de Janeiro

Revista	# Articles	% sobre el total (1009)
OCEAN ENGINEERING	59	5,84%
ENGENHARIA SANITARIA E AMBIENTAL	45	4,46%
CONSTRUCTION AND BUILDING MATERIALS	37	3,66%
MARINE STRUCTURES	34	3,37%
ENGINEERING ANALYSIS WITH BOUNDARY ELEMENTS	30	2,97%
THIN WALLED STRUCTURES	21	2,08%
INVERSE PROBLEMS IN SCIENCE AND ENGINEERING	20	1,98%
GEOTEXTILES AND GEOMEMBRANES	17	1,68%
SOILS AND ROCKS	17	1,68%
CEMENT CONCRETE COMPOSITES	16	1,58%
COMPOSITES PART B ENGINEERING	15	1,48%
ENVIRONMENTAL EARTH SCIENCES	15	1,48%
APPLIED SCIENCES BASEL	14	1,38%
MEASUREMENT	14	1,38%
WATER	14	1,38%
APPLIED MATHEMATICAL MODELLING	13	1,28%
NATURAL HAZARDS	13	1,28%
WATER SCIENCE AND TECHNOLOGY	13	1,28%
MATHEMATICAL PROBLEMS IN ENGINEERING	12	1,18%
WATER AIR AND SOIL POLLUTION	11	1,09%
WATER RESEARCH	11	1,09%
CASE STUDIES ON TRANSPORT POLICY	10	0,99%
ENGINEERING STRUCTURES	10	0,99%
JOURNAL OF AIR TRANSPORT MANAGEMENT	10	0,99%
JOURNAL OF HYDROLOGY AND HYDROMECHANICS	10	0,99%



### 5.1.13. USP - Universidade de São Paulo

Revista	# Articles	% sobre el total (2035)
ENGENHARIA SANITARIA E AMBIENTAL	122	5,99%
CONSTRUCTION AND BUILDING MATERIALS	101	4,96%
WATER AIR AND SOIL POLLUTION	77	3,78%
ENVIRONMENTAL EARTH SCIENCES	50	2,45%
LATIN AMERICAN JOURNAL OF SOLIDS AND STRUCTURES	47	2,31%
ENGINEERING STRUCTURES	44	2,16%
CATENA	43	2,11%
APPLIED SCIENCES BASEL	40	1,96%
COMPUTER METHODS IN APPLIED MECHANICS AND ENGINEERING	37	1,81%
WATER SCIENCE AND TECHNOLOGY	34	1,67%
OCEAN COASTAL MANAGEMENT	32	1,57%
SOILS AND ROCKS	31	1,52%
STRUCTURAL AND MULTIDISCIPLINARY OPTIMIZATION	30	1,47%
AGRICULTURAL WATER MANAGEMENT	28	1,37%
OCEAN ENGINEERING	28	1,37%
MEASUREMENT	27	1,32%
QUALITY AND RELIABILITY ENGINEERING INTERNATIONAL	25	1,22%
WATER	24	1,17%
JOURNAL OF MATERIALS IN CIVIL ENGINEERING	23	1,13%
JOURNAL OF WATER PROCESS ENGINEERING	23	1,13%
APPLIED MATHEMATICAL MODELLING	22	1,08%
ENGINEERING ANALYSIS WITH BOUNDARY ELEMENTS	22	1,08%
RBRH REVISTA BRASILEIRA DE RECURSOS HIDRICOS	21	1,03%
CEMENT CONCRETE COMPOSITES	18	0,88%
MATHEMATICAL PROBLEMS IN ENGINEERING	18	0,88%



### 5.1.14. ULisboa - Universidade de Lisboa / UTL

Revista	# Articles	% sobre el total (3351)
CONSTRUCTION AND BUILDING MATERIALS	245	7,31%
OCEAN ENGINEERING	210	6,26%
WATER	152	4,53%
APPLIED SCIENCES BASEL	125	3,73%
THIN WALLED STRUCTURES	111	3,31%
ENGINEERING STRUCTURES	99	2,95%
JOURNAL OF BUILDING ENGINEERING	65	1,94%
ENERGY AND BUILDINGS	60	1,79%
NATURAL HAZARDS AND EARTH SYSTEM SCIENCES	52	1,55%
MEASUREMENT	51	1,52%
COMPOSITES PART B ENGINEERING	50	1,49%
AGRICULTURAL WATER MANAGEMENT	48	1,43%
MARINE STRUCTURES	44	1,31%
JOURNAL OF PERFORMANCE OF CONSTRUCTED FACILITIES	41	1,22%
BUILDING AND ENVIRONMENT	39	1,16%
WATER RESOURCES MANAGEMENT	35	1,04%
BULLETIN OF EARTHQUAKE ENGINEERING	33	0,98%
COMPUTERS STRUCTURES	33	0,98%
JOURNAL OF HYDROLOGY	31	0,92%
CEMENT CONCRETE COMPOSITES	30	0,89%
WATER SCIENCE AND TECHNOLOGY	30	0,89%
OCEAN COASTAL MANAGEMENT	28	0,83%
WOODHEAD PUBLISHING SERIES IN CIVIL AND STRUCTURAL ENGINEERING	28	0,83%
ENVIRONMENTAL EARTH SCIENCES	27	0,80%
MATERIALS AND STRUCTURES	27	0,80%



### 5.1.15. UPM - Universidad Politécnica de Madrid

Revista	# Articles	% sobre el total (2506)
APPLIED SCIENCES BASEL	210	8,38%
CONSTRUCTION AND BUILDING MATERIALS	138	5,50%
INFORMES DE LA CONSTRUCCION	137	5,46%
DYNA	78	3,11%
INTERNATIONAL JOURNAL OF ENGINEERING EDUCATION	67	2,67%
WATER	62	2,47%
ENERGY AND BUILDINGS	57	2,27%
MATERIALES DE CONSTRUCCION	57	2,27%
ENGINEERING STRUCTURES	51	2,03%
AGRICULTURAL WATER MANAGEMENT	43	1,71%
REVISTA DE LA CONSTRUCCION	40	1,59%
MEASUREMENT	37	1,47%
COMPOSITES PART B ENGINEERING	34	1,35%
OCEAN ENGINEERING	29	1,15%
STRUCTURAL CONCRETE	26	1,03%
COMPUTER METHODS IN APPLIED MECHANICS AND ENGINEERING	25	0,99%
JOURNAL OF HYDROLOGY	23	0,91%
COMPUTER APPLICATIONS IN ENGINEERING EDUCATION	22	0,87%
WATER RESOURCES MANAGEMENT	22	0,87%
HORMIGON Y ACERO	21	0,83%
MATHEMATICAL PROBLEMS IN ENGINEERING	21	0,83%
NATURAL HAZARDS AND EARTH SYSTEM SCIENCES	21	0,83%
APPLIED MATHEMATICAL MODELLING	20	0,79%
ENGINEERING APPLICATIONS OF ARTIFICIAL INTELLIGENCE	19	0,75%
IEEE TRANSACTIONS ON INTELLIGENT TRANSPORTATION SYSTEMS	19	0,75%



### 5.1.16. UPV - Universitat Politècnica de València

Revista	# Articles	% sobre el total (2064)
APPLIED SCIENCES BASEL	152	7,36%
WATER	109	5,28%
INTERNATIONAL JOURNAL OF ENGINE RESEARCH	96	4,65%
ENGINEERING STRUCTURES	90	4,36%
CONSTRUCTION AND BUILDING MATERIALS	78	3,77%
INFORMES DE LA CONSTRUCCION	37	1,79%
3C TECNOLOGIA	34	1,64%
JOURNAL OF HYDROLOGY	33	1,59%
MATHEMATICAL PROBLEMS IN ENGINEERING	33	1,59%
DYNA	27	1,30%
IEEE TRANSACTIONS ON INDUSTRY APPLICATIONS	27	1,30%
DESALINATION AND WATER TREATMENT	26	1,26%
ENERGY AND BUILDINGS	24	1,16%
JOURNAL OF WATER RESOURCES PLANNING AND MANAGEMENT	24	1,16%
WATER RESEARCH	24	1,16%
INGENIERIA DEL AGUA	23	1,11%
MEASUREMENT	23	1,11%
WATER RESOURCES MANAGEMENT	23	1,11%
PROCEEDINGS OF THE INSTITUTION OF MECHANICAL ENGINEERS PART D JOURNAL OF AUTOMOBILE ENGINEERING	22	1,06%
APPLIED MATHEMATICAL MODELLING	21	1,01%
COMPOSITES PART B ENGINEERING	21	1,01%
AGRICULTURAL WATER MANAGEMENT	20	0,96%
ENVIRONMENTAL MODELLING SOFTWARE	20	0,96%
IEEE TRANSACTIONS ON VEHICULAR TECHNOLOGY	19	0,92%
TRANSPORTATION RESEARCH RECORD	18	0,87%



## 5.2. Taula de coincidències de les revistes amb major presència en les llistes de publicacions amb més articles

Revista	# Aparicions en universitats distintes
ENGINEERING STRUCTURES	16
CONSTRUCTION AND BUILDING MATERIALS	15
APPLIED SCIENCES BASEL	14
COMPUTER METHODS IN APPLIED MECHANICS AND ENGINEERING	12
JOURNAL OF HYDROLOGY	12
WATER	12
WATER RESEARCH	11
ENERGY AND BUILDINGS	9
WATER RESOURCES RESEARCH	9
TRANSPORTATION RESEARCH RECORD	8





### 5.3. Taula unificada de revistes amb major presència en les llistes de publicacions amb més articles

Revista	# Articles	Factor d'impacte 2021
CONSTRUCTION AND BUILDING MATERIALS	1443	7.693
TRANSPORTATION RESEARCH RECORD	1155	2.019
APPLIED SCIENCES BASEL	975	2.838
ENGINEERING STRUCTURES	859	5.582
WATER	780	3.53
WATER RESOURCES RESEARCH	727	6.159
COMPUTER METHODS IN APPLIED MECHANICS AND ENGINEERING	649	6.588
WATER RESEARCH	618	13.4
JOURNAL OF HYDROLOGY	603	6.708
OCEAN ENGINEERING	528	4.372
ENERGY AND BUILDINGS	473	7.201
CEMENT AND CONCRETE RESEARCH	418	11.958
INTERNATIONAL JOURNAL FOR NUMERICAL METHODS IN ENGINEERING	398	3.021
TRANSPORTATION RESEARCH PART C EMERGING TECHNOLOGIES	394	9.022
BUILDING AND ENVIRONMENT	372	7.093
HYDROLOGY AND EARTH SYSTEM SCIENCES	364	6.617
COMBUSTION AND FLAME	359	5.767
IEEE TRANSACTIONS ON INTELLIGENT TRANSPORTATION SYSTEMS	319	9.551
ADVANCES IN WATER RESOURCES	298	5.361
COMPOSITES PART B ENGINEERING	285	11.322
MEASUREMENT	270	5.131
WATER SCIENCE AND TECHNOLOGY	264	2.43
THIN WALLED STRUCTURES	262	5.881
ACCIDENT ANALYSIS AND PREVENTION	248	6.376
IEEE TRANSACTIONS ON VEHICULAR TECHNOLOGY	248	6.239



## 6. Conclusions

### ***Sobre les institucions***

- Les institucions que s'analitzen en el present estudi són les mateixes que en edicions anteriors del mateix informe i que abastaven els períodes 1998-2008<sup>14</sup>, 2000-2010<sup>15</sup>, 2006-2015<sup>16</sup> i 2009-2021<sup>17</sup>. Com en aquells casos, no ha estat possible discriminar per a cada una de les universitats el pes específic que ocupa l'enginyeria civil dins el conjunt global de les institucions.
- La impossibilitat de comparar de manera fiable i uniforme les estructures orgàniques -i la quantitat de professors de cadascuna d'aquestes estructures- de les universitats analitzades ha impedit que es poguessin portar a terme comparacions complementàries d'interès, principalment relatives a la productivitat de les universitats/professors i a la ràtio de citacions per professor de cadascuna de les institucions.
- L'École Nationale des Ponts et Chaussées ha passat durant els últims anys per diverses conformacions administratives i de vinculació amb altres institucions. D'altra banda el Laboratoire Central des Ponts et Chaussées vinculat al l'organisme estatal Centre Nationale de la Recherche Scientifique (CNRS), i dissolt per s'ha integrar-se a la Université Gustave-Eiffel Per aquest motiu, i tenint en compte el període cronològic del present estudi ens hem estimat realitzar una cerca amplia que recuperi tota la producció de les institucions, a partir dels seus noms. La denominació simplificada dins d'aquest informe és la de École des Ponts - Paris Tech.

### ***Sobre la base documental utilitzada per a l'estudi***

- La metodologia utilitzada, anàlisi de les revistes indexades sota les categories més vinculades a l'enginyeria civil, no permet considerar aquest estudi com un informe exhaustiu però sí obtenir una visió suficientment indicativa de la recerca en enginyeria civil a la UPC i a l'Escola de Camins en els àmbits analitzats.
- Sobre les set categories escollides i esmentades en el l'apartat introductorí dedicat a la metodologia, l'estudi ofereix també una visió comparativa amb les institucions amb les quals l'Escola de Camins li ha interessat comparar-se.

### ***Publicació d'articles***

- Les universitats amb estudis en enginyeria civil que, en el període abastat, han tingut una major producció científica a les categories estudiades són: TU Delft amb 5609, Texas A&M University amb 4340 i ULisboa amb 3351.
- La UPC, incloent-hi l'Escola de Camins, ocupa la posició número 6 en aquest rànquing (2723 documents), guanyant 1 posició respecte l'estudi anterior, i l'Escola de Camins per sí mateixa ocupa la posició número 14 en aquest rànquing (1526 documents), baixant una posició respecte l'estudi anterior.
- El personal docent i investigador vinculat a l'Escola de Camins concentra el 56,04% de l'autoria en la publicació a la UPC en les àrees estudiades. Per tant, la dinàmica

<sup>14</sup>.- Es pot consultar l'edició 1998-2008 a: <http://hdl.handle.net/2117/12549>

<sup>15</sup>.- Es pot consultar l'edició 2000-2010 a: <http://hdl.handle.net/2117/20017>

<sup>16</sup>.- Es pot consultar l'edició 2006-2015 a: <http://hdl.handle.net/2117/96620>

<sup>17</sup>.- Es pot consultar l'edició 2009-2018 a: <http://hdl.handle.net/2117/174947>



de publicació del conjunt de professors vinculat a l'Escola és determinant per a la dinàmica global de la UPC.

- Del conjunt d'universitats politècniques de l'Estat espanyol, la UPC és la que presenta un major nombre de publicacions –un 31,9% superior a la UPV i un 8,6% superior a la UPM-.
- L'Escola de Camins per sí sola ha publicat, per a les revistes i el període estudiat en aquest informe, un nombre d'articles proper al publicat pel conjunt de la UPV (un 73,9%).
- Des d'un punt de vista geogràfic, de les 4 universitats dels Estats Units estudiades, 2 se situen en els 5 primers llocs quant a producció d'articles. La TU Delft se situa en primer lloc i la Universidade de Lisboa en tercer lloc (pujant des del tercer lloc que ocupava durant el període 2009-2018), mentre que la resta d'universitats europees estudiades es troben a la zona mitja del rànquing. En l'àmbit llatinoamericà, la primera universitat és la Universidade de São Paulo que ocupa el 12è. lloc, pujant una posició respecte el període analitzat per l'estudi anterior.
- En general la gràfica de tendència mostra una evolució positiva pel que fa a la quantitat d'articles publicats durant els anys 2012-2021, tot i que hi podrien haver 2 patrons diferenciats:
  - 4 de les 16 universitats estudiades:
    - Technische Universiteit Delft
    - Texas A&M University
    - Universidade Técnica de Lisboa
    - École Nationale des Ponts et Chaussées / Laboratoire Central des Ponts et Chaussées / IFSSTAR

mostren una tendència pronunciadament ascendent, especialment accentuada des de l'any 2000.

l'École Polytechnique Fédérale de Laussane ha anat baixant posicions progressivament des de 2006 pel que fa a la producció.

La resta d'universitats, on s'inclouen la UPC i l'Escola de Camins, mostren una tendència ascendent estable des del 1998 fins el 2021.

### **Citacions rebudes**

- L'increment del total de les citacions rebudes és constant en totes les universitats estudiades durant el període 2012-2021. Això també és vàlid tant per a la UPC que es manté al 9è lloc del rànquing general com per a l'Escola de Camins, tot i que en aquest cas baixa 2 posicions respecte l'anterior estudi, ocupant el 12è lloc .
- Les universitats que han rebut més citacions són: TU Delft amb 112808 citacions, University of California Berkeley amb 70980 citacions, i la Texas A&M University amb 69695.
- Els cinc primers llocs del rànquing estan ocupats per 3 universitats europees -TU Delft, l'École Polytechnique Fédérale de Laussane i Universidade de Lisboa- i 2 dels Estats Units -University of California Berkeley i Texas A&M University-.
- El gran nombre de citacions, juntament amb una producció en descens fa que l'École Polytechnique Fédérale de Laussane, passi a ser la institució amb la mitjana de citacions més alta



- Destaca de nou l'evolució positiva de la Universidade de Lisboa (anteriorment Universidade Tecnica de Lisboa) que ha incrementat en un 70% el nombre de citacions rebudes respecte l'estudi anterior, passant de 35513 a 600548 citacions.
- Els professors vinculats a l'Escola de Camins reben el 62% del total de citacions de la UPC durant el període analitzat. De la mateixa manera que amb la quantitat de publicacions, la dinàmica de citacions rebudes pels articles vinculats a l'ETSECCPB és determinant per a la dinàmica global de la UPC.
- Les citacions totals rebudes continuen pujant tant en general com en el cas de la UPC i l'Escola de Camins. És notable el creixement el nombre de citacions de la UPM, que supera a la UPV per primer cop.
- Els articles publicats per l'Escola de Camins reben una mitjana de 17,55 citacions per article. Això situa l'Escola en la desena mitjana més alta de les universitats estudiades si la considerem aïlladament. La UPC se situa en el seu conjunt en la dotzena posició d'aquest rànquing -15,79 citacions per article-.
- La UPC és la universitat de l'Estat amb més citacions durant el període estudiat –un 30,67% superior a la UPM i un 58,18% més que la UPV-.
- L'Escola de Camins per si sola ha rebut menys citacions que la UPV i la UPM, concretament, un 1,4 i un 10,1% menys respectivament.
- La mitjana de citacions rebudes per article corresponent a documents amb autors vinculats a la UPC durant el període analitzat és el més alt de l'Estat, superant a la de la UPV en 2,62 punts, i a la UPM en 3,9. Si comparem l'Escola de Camins amb la resta d'universitats estatals, el resultat són encara més contrastats donat que la diferència entre l'Escola i la UPV és de 4,38 punts i amb la UPM de 5,66 punts.
- Les universitats amb un índex H més alt sobre el conjunt d'articles estudiats són: TU Delft (112), University of California Berkeley (101), École Polytechnique Fédérale de Laussane (87) i Swiss Federal Institute of Technology Zurich (98).
- L'Escola de Camins té un índex H 62, la qual cosa significa que la majoria dels articles -excepte 8- que contribueixen a l'índex H de la UPC (70), tenen com a autors professors l'Escola.
- La UPC és la universitat de l'Estat estudiada amb un índex H més alt: 72, per 62 de la UPM i 49 de la UPV.

### **Autors i articles**

- L'article que ha rebut més citacions del conjunt de les 16 universitats està signat per investigadors del Imperial College London. El seu títol és *Pore-scale imaging and modelling*, està signat per M.J. Blunt entre d'altres i publicat l'any 2013 a la revista *Advances in water resources*. Durant el període estudiat ha rebut 1054 citacions.
- El segon i el tercer lloc del rànquing de citacions l'ocupen respectivament articles signats per investigadors de la TU Delft -1024 citacions- i, en tercer lloc, Texas A&M University -798 citacions-.
- L'article més citat tant pel que fa a la UPC com a l'Escola de Camins és *Recommendations for the quantitative analysis of landslide risk*, amb 566 citacions i es va publicar a la revista *Bulletin of engineering geology and the*. Està signat, entre d'altres, pels professors de l'Escola de Camins Jordi Corominas i Olga Mavrouli



## Revistes

- No hi ha cap títol que estigui present en totes les taules de les revistes on més publiquen les 16 universitats analitzades. Les que apareixen amb més freqüència són: *Engineering Structures* -16 vegades-, *Construction and Building Materials* -15 vegades-, *Applied Science Basel* -14 vegades- i *Journal of Hydrology*, *Computer Methods in Applied Mechanics* i *Water* -12 vegades cadascuna–.
- Les tres revistes on més publiquen els professors del conjunt de les universitats analitzades són: *Construction and Building Materials* -1443 articles-, *Transportation research record* -1155 articles- i *Applied Science Basel* -975 articles-
- Entre les estudiades, *Construction and building materials* és la revista preferida pels autors de la UPC / Escola de Camins a l'hora publicar: 159 articles –el 5,86% del total- s'han publicat allí. *Computer Methods in Applied Mechanics and Engineering* -132 articles-, *Applied Sciences Basel* -110 articles-, *Engineering structures* -84 articles- *International Journal for Numerical Methods in Engineering* -83 articles, i *Water*– 53 articles-, són altres títols de revistes pels quals els autors UPC / Escola de Camins mostren preferència a l'hora de publicar. En setè lloc, amb 47 articles publicats, es situa la *Revista Internacional de Métodos Numéricos para Cálculo y Diseño en Ingeniería (RIMNI)* publicada pel CIMNE.

## Continuïtat de l'estudi

Aquest informe ofereix informació rellevant per als objectius previstos inicialment. Per aquest motiu la BRGF i la Federació “UPC-Camins-BarcelonaTech”<sup>18</sup> tenen la intenció de repetir-lo regularment com a observatori de la publicació científica directament lligada a l'Escola i al Departament d'Enginyeria Civil i Ambiental i, per extensió, a l'enginyeria civil en l'entorn UPC.

Així mateix, aquest estudi representa una plataforma per al desenvolupament d'estudis bibliomètrics més detallats en els camps d'interès de la Federació.

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<sup>18</sup> La Federació “UPC-Camins-BarcelonaTech” és un ens format per l'Escola de Camins i el Departament d'Enginyeria Civil i Ambiental de la UPC



## 7. Annex 1

### 7.1. Llista completa de les 388 revistes usades per a l'estudi ordre alfabètic de títols

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- ACI materials journal
- ACI structural journal
- Acta geotechnica
- Acta geotechnica slovenica
- Acta polytechnica hungarica
- Advanced engineering informatics
- Advanced steel construction
- Advances in cement research
- Advances in civil engineering
- Advances in concrete construction
- Advances in engineering software
- Advances in structural engineering
- Advances in water resources
- Agricultural water management
- Ai edam-artificial intelligence for engineering design analysis and manufacturing
- Ain shams engineering journal
- Alexandria engineering journal
- Applied mathematical modelling
- Applied mathematics in science and engineering
- Applied sciences-Basel
- Applied water science
- Aqua-water infrastructure ecosystems and society
- Aquatic conservation-marine and freshwater ecosystems
- Archives of civil and mechanical engineering
- Archives of computational methods in engineering
- Architectural engineering and design management
- ASCE-ASME journal of risk and uncertainty in engineering systems
- ASHRAE journal
- Atomization and sprays
- Automation in construction
- Baltic journal of road and bridge engineering
- Bauingenieur
- Bauphysik
- Bautechnik



- Beton- und stahlbetonbau
- Bioinspiration & biomimètics
- Biomimetics
- Buildings
- Building and environment
- Building research and information
- Building services engineering research & technology
- Building simulation
- Bulletin of earthquake engineering
- Bulletin of engineering geology and the environment
- Bulletin of the Polish academy of sciences-technical sciences
- Canadian geotechnical journal
- Canadian journal of civil engineering
- Canadian water resources journal
- Case studies in construction materials
- Catena
- Cement & concrete composites
- Cement and concrete research
- Cement wapno beton
- China ocean engineering
- Civil engineering
- Civil engineering and environmental systems
- Clean-soil air water
- CMES-computer modeling in engineering & sciences
- Coastal engineering
- Coastal engineering journal
- Cold regions science and technology
- Combustion and flame
- Combustion explosion and shock waves
- Combustion science and technology
- Composites Part B-engineering
- Computer applications in engineering education
- Computer methods in applied mechanics and engineering
- Computer-aided civil and infrastructure engineering
- Computers & structures
- Computers and concrete
- Computers and geotechnics
- Construction and building materials



- Defence technology
- Desalination
- Desalination and water treatment
- Design studies
- Developments in the built environment
- Dyna
- Earthquake engineering & structural dynamics
- Earthquake engineering and engineering vibration
- Earthquake spectra
- Earthquakes and structures
- Ecohydrology
- Ecohydrology & hydrobiology
- Eksploatacja i niezawodnosc-maintenance and reliability
- Energy and buildings
- Engenharia sanitaria e ambiental
- Engineering
- Engineering analysis with boundary elements
- Engineering applications of artificial intelligence
- Engineering applications of computational fluid mechanics
- Engineering computations
- Engineering construction and architectural management
- Engineering geology
- Engineering journal-american institute of steel construction
- Engineering optimization
- Engineering science and technology-an international journal-JESTECH
- Engineering structures
- Engineering studies
- Environmental & engineering geoscience
- Environmental earth sciences
- Environmental fluid mechanics
- Environmental geochemistry and health
- Environmental geotechnics
- Environmental modelling & software
- Environmental science-water research & technology
- Environmental toxicology
- European journal of environmental and civil engineering
- European transport research review
- Exposure and health





- Fire safety journal
- Fire technology
- Forschung im ingenieurwesen-engineering research
- Frontiers of structural and civil engineering
- Gefahrstoffe Reinhaltung der Luft
- Geomatics natural hazards & risk
- Geomechanics and engineering
- Geomechanics and geophysics for geo-energy and geo-resources
- Geomechanics for energy and the environment
- Georisk-assessment and management of risk for engineered systems and geohazards
- Geosynthetics international
- Geotechnical testing journal
- Geotechnique
- Geotechnique letters
- Geotextiles and geomembranes
- Gradevinar
- Ground water monitoring and remediation
- Groundwater
- Grundwasser
- Hydrogeology journal
- Hydrological processes
- Hydrological sciences journal-journal des sciences hydrologiques
- Hydrologie und Wasserbewirtschaftung
- Hydrology and earth system sciences
- Hydrology research
- IEEE intelligent transportation systems magazine
- IEEE journal of oceanic engineering
- IEEE transactions on industry applications
- IEEE transactions on intelligent transportation systems
- IEEE transactions on intelligent vehicles
- IEEE transactions on network science and engineering
- IEEE transactions on transportation electrification
- IEEE transactions on vehicular technology
- IEEE vehicular technology magazine
- IET electrical systems in transportation
- IET intelligent transport systems
- Indian journal of engineering and materials sciences
- Indoor air



- Indoor and built environment
- Informes de la construcció
- Ingeniería sísmica
- Ingeniería e investigación
- Instruments and experimental techniques
- Integrated computer-aided engineering
- International journal for multiscale computational engineering
- International journal for numerical methods in engineering
- International journal for uncertainty quantification
- International journal of architectural heritage
- International journal of automotive Technology
- International journal of civil engineering
- International journal of computational methods
- International journal of concrete structures and materials
- International journal of critical infrastructure protection
- International journal of design
- International journal of disaster risk reduction
- International journal of engine research
- International journal of engineering education
- International journal of engineering science
- International journal of geomechanics
- International journal of heavy vehicle systems
- International journal of nonlinear sciences and numerical simulation
- International journal of offshore and polar engineering
- International journal of pavement engineering
- International journal of physical modelling in geotechnics
- International journal of pressure vessels and piping
- International journal of rail transportation
- International journal of rock mechanics and mining sciences
- International journal of sediment research
- International journal of steel structures
- International journal of structural stability and dynamics
- International journal of transport economics
- International journal of vehicle design
- International journal of ventilation
- International journal of water resources development
- Inverse problems in science and engineering
- Iranian journal of science and technology-transactions of civil engineering



- Irrigation and drainage
- Irrigation science
- ISA transactions
- Issues in science and technology
- ITE journal-institute of transportation engineers
- Journal american water works association
- Journal of advanced concrete technology
- Journal of advanced transportation
- Journal of aerospace engineering
- Journal of asian architecture and building engineering
- Journal of bionic engineering
- Journal of bridge engineering
- Journal of building engineering
- Journal of building performance simulation
- Journal of building physics
- Journal of civil engineering education
- Journal of civil structural health monitoring
- Journal of cold regions engineering
- Journal of composites for construction
- Journal of computational design and engineering
- Journal of computing in civil engineering
- Journal of construction engineering and management
- Journal of constructional steel research
- Journal of contaminant hydrology
- Journal of earthquake engineering
- Journal of elasticity
- Journal of energy engineering
- Journal of engineering design
- Journal of engineering education
- Journal of engineering mathematics
- Journal of engineering research
- Journal of engineering technology
- Journal of environmental and engineering geophysics
- Journal of environmental engineering
- Journal of fire sciences
- Journal of flood risk management
- Journal of geotechnical and geoenvironmental engineering
- Journal of hydraulic engineering



- Journal of hydraulic research
- Journal of hydro-environment research
- Journal of hydroinformatics
- Journal of hydrologic engineering
- Journal of hydrology
- Journal of hydrology and hydromechanics
- Journal of hydrology-regional studies
- Journal of industrial and management optimization
- Journal of infrastructure systems
- Journal of intelligent transportation systems
- Journal of irrigation and drainage engineering
- Journal of management in engineering
- Journal of marine science and technology-taiwan
- Journal of materials in civil engineering
- Journal of performance of constructed facilities
- Journal of pipeline systems engineering and practice
- Journal of rock mechanics and geotechnical engineering
- Journal of scientific & industrial research
- Journal of ship research
- Journal of soil and water conservation
- Journal of structural engineering
- Journal of surveying engineering
- Journal of sustainable cement-based materials
- Journal of the american water resources association
- Journal of the audio engineering society
- Journal of the chinese institute of engineers
- Journal of the faculty of engineering and architecture of gazi university
- Journal of the franklin institute-engineering and applied mathematics
- Journal of the south african institution of civil engineering
- Journal of transportation engineering part a-systems
- Journal of transportation engineering part b-pavements
- Journal of urban planning and development
- Journal of water and climate change
- Journal of water resources planning and management
- Journal of water sanitation and hygiene for development
- Journal of waterway port coastal and ocean engineering
- Journal of wind engineering and industrial aerodynamics
- Journal of Zhejiang university-Science A



- KSCE journal of civil engineering
- Lake and reservoir management
- Landslides
- Latin American journal of solids and structures
- Leukos
- LHB-hydroscience journal
- Lighting research & technology
- Magazine of concrete research
- Marine georesources & geotechnology
- Marine structures
- Materiales de construccion
- Materials and structures
- Mathematical problems in engineering
- Measurement
- Measurement science and technology
- Membrane water treatment
- Mine water and the environment
- Natural hazards
- Natural hazards and earth system sciences
- Natural hazards review
- Naval engineers journal
- Networks & spatial economics
- Noise control engineering journal
- NPJ clean water
- Ocean & coastal management
- Ocean engineering
- Optimization and engineering
- PCI journal
- Periodica polytechnica-civil engineering
- Physics and chemistry of the earth
- Precision engineering-journal of the international societies for precision engineering and nanotechnology
- Proceedings of the Institution of Civil Engineers-civil engineering
- Proceedings of the Institution of Civil Engineers-engineering sustainability
- Proceedings of the Institution of Civil Engineers-geotechnical engineering
- Proceedings of the Institution of Civil Engineers-maritime engineering
- Proceedings of the Institution of Civil Engineers-municipal engineer
- Proceedings of the Institution of Civil Engineers-structures and buildings



- Proceedings of the Institution of Civil Engineers-transport
- Proceedings of the Institution of Civil Engineers-water management
- Proceedings of the Institution of Mechanical Engineers Part F-Journal of rail and rapid transit
- Proceedings of the Institution of Mechanical Engineers Part O-Journal of risk and reliability
- Promet-traffic & transportation
- Quality and reliability engineering international
- Quarterly journal of engineering geology and hydrogeology
- Research in engineering design
- Revista de la construcció
- Revista internacional de metodos numericos para calculo y diseno en ingenieria
- Revista romana de materiale-Romanian journal of materials
- River research and applications
- Road materials and pavement design
- Rock mechanics and rock engineering
- Sadhana-academy Proceedings in engineering sciences
- SAMPE journal
- Science and engineering ethics
- Science and technology for the built environment
- Science china-technological sciences
- Scientia Iranica
- Smart structures and systems
- Soil and water research
- Soil dynamics and earthquake engineering
- Soil mechanics and foundation engineering
- Soils and foundations
- Stahlbau
- Steel and composite structures
- Stochastic environmental research and risk assessment
- Structural and multidisciplinary optimization
- Structural concrete
- Structural control & health monitoring
- Structural design of tall and special buildings
- Structural engineering and mechanics
- Structural engineering international
- Structural health monitoring-an international journal
- Structural safety



- Structure and infrastructure engineering
- Structures
- Survey review
- Sustainable cities and society
- Tecnología y ciencias del agua
- Tehnicki vjesnik-Technical gazette
- Teknik Dergi
- Thin-walled structures
- Traffic injury prevention
- Transport
- Transportation
- Transportation geotechnics
- Transportation letters-the international journal of transportation research
- Transportation planning and technology
- Transportation research Part A-policy and practice
- Transportation research Part B-methodological
- Transportation research Part C-emerging technologies
- Transportation research Part D-transport and environment
- Transportation research Part E-logistics and transportation review
- Transportation research record
- Transportation science
- Transportmetrica A-Transport science
- Transportmetrica B-Transport dynamics
- Tunnelling and underground space Technology
- Underground space
- Urban water journal
- Vadose zone journal
- Vehicular communications
- Wasserwirtschaft
- Water
- Water air and soil pollution
- Water alternatives-an interdisciplinary journal on water politics and development
- Water and environment journal
- Water economics and policy
- Water environment research
- Water international
- Water policy
- Water quality research journal of canada



- Water research
- Water research X
- Water resources
- Water resources and econòmics
- Water resources and industry
- Water resources management
- Water resources research
- Water reuse
- Water SA
- Water science and Technology
- Water supply
- Wetlands ecology and management
- Wiley interdisciplinary reviews-water
- Wind and structures
- ZKG International

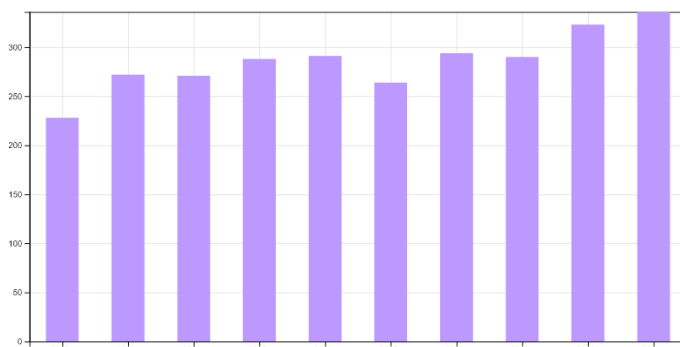




## 8. Annex 2

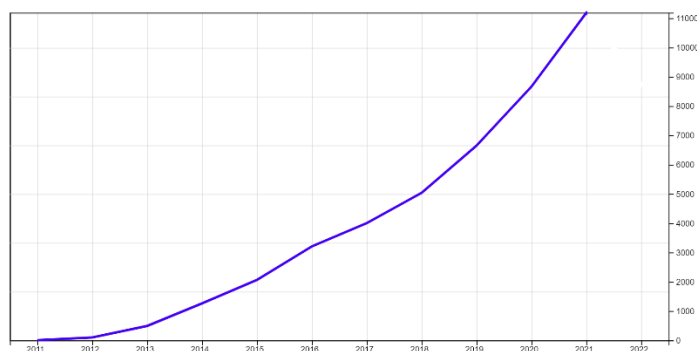
### 8.1. Dades bibliomètriques de la producció del PDI de l'Escola de Camins considerant totes les WoS categories

Gran part del professorat de l'Escola publica no només en revistes indexades sota les categories de Web of Science considerades a l'estudi comparatiu. També ho fa a revistes indexades sota altres categories de Web of Science. Aquesta producció tanmateix, és indicativa de la diversitat de la recerca a l'Escola. A títol informatiu, es mostren les principals dades bibliomètriques del conjunt d'articles publicats a partir de la cerca feta sobre la producció dels 319 membres actius del PDI de l'Escola de Camins, en el període 2012-2021; així com la taula següent amb la llista dels articles que han rebut com a mínim 100 citacions, independentment de la revista on han aparegut. Els autors de l'Escola es destaquen en negra.



Producció 2012-2021

Any	# Articles
2021	336
2020	323
2019	294
2018	291
2017	290
2016	288
2015	272
2014	271
2013	264
2012	228
<b>Total</b>	<b>2857</b>



Citacions 2012-2021

- Total d'articles publicats: 2857 (1526 recollits en l'apartat *Gràfics i dades d'articles publicats*)
- Quantitat de citacions rebudes: 51519 (26788 recollits en l'apartat *Gràfics i dades de citacions rebudes*)
- Mitjana de citacions per ítem: 18,03 (17,55 en l'apartat *Gràfics i dades de citacions rebudes*)
- Índex H període 2012-2021: 78 (62 en l'apartat *Gràfic i taula comparatius de l'índex H*)



#	Autors	Articles	Revista	# Citacions
1	<b>Corominas, J;</b> van Westen, C; Frattini, P;; <b>Mavrouli, O;</b> [et al.]	Recommendations for the quantitative analysis of landslide risk	<i>BULLETIN OF ENGINEERING GEOLOGY AND THE ENVIRONMENT</i> 73 (2) , pp.209-263 May 2014	577
2	Birkmann, J; Cardona, OD; <b>Carreno, ML;</b> <b>Barbat, AH;</b> [et al.]	Framing vulnerability, risk and societal responses: the MOVE framework	<i>NATURAL HAZARDS</i> 67 (2) , pp.193-211 Jun 2013	473
3	<b>Arrayago, I;</b> <b>Real, E</b> and Gardner, L	Description of stress-strain curves for stainless steel alloys	<i>MATERIALS AND DESIGN</i> 87, pp.540-552 Dec 15 2015	265
4	Amiri, F; <b>Millan, D;</b> Shen, Y Rabczuk, T., <b>Arroyo, M</b>	Phase-field modeling of fracture in linear thin shells	<i>THEORETICAL AND APPLIED FRACTURE MECHANICS</i> 69 , pp.102-109 Feb 2014	234
5	Soga, K; <b>Alonso, E;</b> <b>Yerro, A;</b> Kumar, K; Bandara, S	Trends in large-deformation analysis of landslide mass movements with particular emphasis on the material point method	<i>GEOTECHNIQUE</i> 66 (3) , pp.248-273 Mar 2016	215
6	Matamoros, V; <b>Gutierrez, R;</b> <b>Ferrer, I;</b> <b>Garcia, J;</b> Bayona, JM	Capability of microalgae-based wastewater treatment systems to remove emerging organic contaminants: A pilot-scale study	<i>JOURNAL OF HAZARDOUS MATERIALS</i> 288 , pp.34-42 May 15 2015	207
7	<b>Andreu, G;</b> <b>Etxebarria, M</b>	Experimental analysis of properties of high performance recycled aggregate concrete	<i>CONSTRUCTION AND BUILDING MATERIALS</i> 52 , pp.227-235 Feb 15 2014	193
8	Matamoros, V; <b>Uggetti, E;</b> <b>Garcia, J;</b> Bayona, JM	Assessment of the mechanisms involved in the removal of emerging contaminants by microalgae from wastewater: a laboratory scale study	<i>JOURNAL OF HAZARDOUS MATERIALS</i> 301 , pp.197-205 Jan 15 2016	165
9	Amiri, F; Anitescu, C; <b>Arroyo, M;</b> Bordas, SPA; Rabczuk, T	XLME interpolants, a seamless bridge between XFEM and enriched meshless methods	<i>COMPUTATIONAL MECHANICS</i> 53 (1) , pp.45-57 Jan 2014	160
10	<b>Alfarah, B;</b> Lopez-Almansa, F; <b>Oller, S</b>	New methodology for calculating damage variables evolution in Plastic Damage Model for RC structures	<i>ENGINEERING STRUCTURES</i> 132 , pp.70-86 Feb 1 2017	159
11	<b>Salazar, F;</b> <b>Moran, R;</b> Toledo, MA; <b>Onate, E</b>	Data-Based Models for the Prediction of Dam Behaviour: A Review and Some Methodological Considerations	<i>ARCHIVES OF COMPUTATIONAL METHODS IN ENGINEERING</i> 24 (1) , pp.1-21 Jan 2017	158
12	<b>Blade, E;</b> Cea, L; <b>Corestein, G;</b> Escolano, E; Puertas, J; Vazquez-Cendon, E; <b>Dolz, J;</b> Coll, A	Iber - River modelling simulation tool	<i>REVISTA INTERNACIONAL DE METODOS NUMERICOS PARA CALCULO Y DISENO EN INGENIERIA</i> 30 (1) , pp.1-10 2014	155



#	Autors	Articles	Revista	# Citacions
13	Gochis, D; Schumacher, R; Brown, B; <b>Sempere-Torres, D.</b>	The Great Colorado Flood of September 2013	<i>BULLETIN OF THE AMERICAN METEOROLOGICAL SOCIETY</i> 96 (9) , pp.1461-1487 Sep 2015	151
14	<b>Passos, F; Sole, M; Garcia, J ; Ferrer, I</b>	Biogas production from microalgae grown in wastewater: Effect of microwave pretreatment	<i>APPLIED ENERGY</i> 108 , pp.168-175 Aug 2013	147
15	<b>Garfi, M ; Flores, L; Ferrer, I</b>	Life Cycle Assessment of wastewater treatment systems for small communities: Activated sludge, constructed wetlands and high rate algal ponds	<i>JOURNAL OF CLEANER PRODUCTION</i> 161 , pp.211-219 Sep 10 2017	145
16	Mencio, A; Mas-Pla, J; <b>Folch, A</b> [et al.]	Nitrate pollution of groundwater; all right..., but nothing else?	<i>SCIENCE OF THE TOTAL ENVIRONMENT</i> 539 , pp.241-251 Jan 1 2016	138
17	<b>Passos, F; Ferrer, I</b>	Influence of hydrothermal pretreatment on microalgal biomass anaerobic digestion and bioenergy production	<i>WATER RESEARCH</i> 68 , pp.364-373 Jan 1 2015	129
18	Zhou, AN; Sheng, DC; Sloan, SW; <b>Gens, A</b>	Interpretation of unsaturated soil behaviour in the stress - Saturation space, I: Volume change and water retention behaviour	<i>COMPUTERS AND GEOTECHNICS</i> 43 , pp.178-187 Jun 2012	129
19	<b>Latorre, E; Kale, S; Casares, L. Arroyo, M;</b> [et al.]	Active superelasticity in three-dimensional epithelia of controlled shape	<i>NATURE</i> 563 (7730) , pp.203-+ Nov 8 2018	123
20	<b>Abdollahi, A; Peco, C; Millan, D Arroyo, M; Arias, I</b>	Computational evaluation of the flexoelectric effect in dielectric solids	<i>JOURNAL OF APPLIED PHYSICS</i> 116 (9) Sep 7 2014	123
21	<b>Romero, E</b>	A microstructural insight into compacted clayey soils and their hydraulic properties	<i>ENGINEERING GEOLOGY</i> 165 , pp.3-19 Oct 24 2013	122
22	<b>Alonso, EE; Pinyol, NM; Gens, A</b>	Compacted soil behaviour: initial state, structure and constitutive modelling	<i>GEOTECHNIQUE</i> 63 (6) , pp.463-478 May 2013	121
23	<b>Cabeza, Y ; Candela, L ; Ronen, D ; Teijon, G</b>	Monitoring the occurrence of emerging contaminants in treated wastewater and groundwater between 2008 and 2010. The Baix Llobregat (Barcelona, Spain)	<i>JOURNAL OF HAZARDOUS MATERIALS</i> 239 , pp.32-39 Nov 15 2012	121
24	<b>Avila, C; Bayona, JM; Martin, I; Salas, JJ; Garcia, J</b>	Emerging organic contaminant removal in a full-scale hybrid constructed wetland system for wastewater treatment and reuse	<i>ECOLOGICAL ENGINEERING</i> 80 , pp.108-116 Jul 2015	119
25	<b>Villalba, S and Casas, JR</b>	Application of optical fiber distributed sensing to health monitoring of concrete structures	<i>MECHANICAL SYSTEMS AND SIGNAL PROCESSING</i> 39 (1-2) , pp.441-451 Aug-sep 2013	117



#	Autors	Articles	Revista	# Citacions
26	<b>Passos, F and Ferrer, I</b>	Microalgae Conversion to Biogas: Thermal Pretreatment Contribution on Net Energy Production	<i>ENVIRONMENTAL SCIENCE &amp; TECHNOLOGY</i> 48 (12) , pp.7171-7178 Jun 17 2014	117
27	<b>Salazar, F;</b> Toledo, MA; <b>Onate, E;</b> Moran, R	An empirical comparison of machine learning techniques for dam behaviour modelling	<i>STRUCTURAL SAFETY</i> 56 , pp.9-17 2015	116
28	<b>Salvador, RP; Cavalaro, SHP; Segura, I;</b> Figueiredo, AD; Perez, J	Early age hydration of cement pastes with alkaline and alkali-free accelerators for sprayed concrete	<i>CONSTRUCTION AND BUILDING MATERIALS</i> 111 , pp.386-398 May 15 2016	116
29	<b>Li, B; Peco, C; Millan, D; Arias, I; Arroyo, M</b>	Phase-field modeling and simulation of fracture in brittle materials with strongly anisotropic surface energy	<i>INTERNATIONAL JOURNAL FOR NUMERICAL METHODS IN ENGINEERING</i> 102 (3-4) , pp.711-727 Apr 20 2015	115
30	<b>Fernandez, I; Bairan, JM; Mari, AR</b>	Corrosion effects on the mechanical properties of reinforcing steel bars. Fatigue and sigma-epsilon behavior	<i>CONSTRUCTION AND BUILDING MATERIALS</i> 101 , pp.772-783 Dec 30 2015	114
31	Valderrama, C; Granados, R; Cortina, JL <b>Josa, A [et al.]</b>	Implementation of best available techniques in cement manufacturing: a life-cycle assessment study	<i>JOURNAL OF CLEANER PRODUCTION</i> 25 , pp.60-67 Apr 2012	114
32	<b>Ciantia, MO; Arroyo, M;</b> Calvetti, F; <b>Gens, A</b>	An approach to enhance efficiency of DEM modelling of soils with crushable grains	<i>GEOTECHNIQUE</i> 65 (2) , pp.91-110 2015	112
33	<b>Gonzalez-Corominas, A; Etxeberria, M</b>	Properties of high performance concrete made with recycled fine ceramic and coarse mixed aggregates	<i>CONSTRUCTION AND BUILDING MATERIALS</i> 68 , pp.618-626 Oct 15 2014	112
34	<b>Passos, F; Carretero, J and Ferrer, I</b>	Comparing pretreatment methods for improving microalgae anaerobic digestion: Thermal, hydrothermal, microwave and ultrasound	<i>CHEMICAL ENGINEERING JOURNAL</i> 279 , pp.667-672 Nov 1 2015	109
35	Cea, L; <b>Blade, E</b>	A simple and efficient unstructured finite volume scheme for solving the shallow water equations in overland flow applications	<i>WATER RESOURCES RESEARCH</i> 51 (7) , pp.5464-5486 JUL 2015	106
36	<b>Avila, C;</b> Reyes, C; Bayona, JM; <b>Garcia, J</b>	Emerging organic contaminant removal depending on primary treatment and operational strategy in horizontal subsurface flow constructed wetlands: Influence of redox	<i>WATER RESEARCH</i> 47 (1) , pp.315-325 Jan 1 2013	105
37	<b>Passos, F; Garcia, J and Ferrer, I</b>	Impact of low temperature pretreatment on the anaerobic digestion of microalgal biomass	<i>BIORESOURCE TECHNOLOGY</i> 138 , pp.79-86 Jun 2013	105
38	<b>Altomare, C;</b> Crespo, AJC; Rogers, BD; Dominguez, JM; <b>Gironella, X;</b> Gomez-Gesteira, M	Numerical modelling of armour block sea breakwater with smoothed particle hydrodynamics	<i>COMPUTERS &amp; STRUCTURES</i> 130 , pp.34-45 Jan 2014	105



#	Autors	Articles	Revista	# Citacions
39	Rivera-Pinto, J ; <b>Egozcue, JJ;</b> Pawlowsky-Glahn, V;[et al.]	Balances: a New Perspective for Microbiome Analysis	<i>MSYSTEMS</i> 3 (4) Jul-aug 2018	104
40	<b>Lu, XF; Lin, X;</b> <b>Chiumenti, M.; Cervera, M. [et al.]</b>	Residual stress and distortion of rectangular and S-shaped Ti-6Al-4V parts by Directed Energy Deposition: Modelling and experimental calibration	<i>ADDITIVE MANUFACTURING</i> 26 , pp.166-179 Mar 2019	104
41	<b>Avila, C ;</b> Matamoros, V Reyes-Contreras, C; <b>Garcia J.;</b> [et al.]	Attenuation of emerging organic contaminants in a hybrid constructed wetland system under different hydraulic loading rates and their associated toxicological effects in wastewater	<i>SCIENCE OF THE TOTAL ENVIRONMENT</i> Feb 1 2014   470 , pp.1272-1280	104
42	<b>Yerro, A; Alonso, EE;</b> <b>Pinyol, NM</b>	The material point method for unsaturated soils	<i>GEOTECHNIQUE</i> 65 (3) , pp.201-217 2015	103
43	Lakshmikantha, MR; <b>Prat, PC; Ledesma, A</b>	Experimental evidence of size effect in soil cracking	<i>CANADIAN GEOTECHNICAL JOURNAL</i> 49 (3) , pp.264-284 Mar 2012	103
44	<b>Arashiro, LT; Montero, N;</b> Ferrer, I; Acien, FG; Gomez, C; <b>Garfi, M</b>	Life cycle assessment of high rate algal ponds for wastewater treatment and resource recovery	<i>SCIENCE OF THE TOTAL ENVIRONMENT</i> 622 , pp.1118-1130 May 1 2018	101



## 8.2. PDI de l'Escola de Camins amb Índex H de Web of Science igual o superior a 30<sup>19</sup>

	iH WoS
Aguado, Antonio	39
Alonso, Eduardo	39
Arroyo, Marino	38
Carol, Ignasi	33
Cervera, Miguel	42
Chiumenti, Michele	32
Codina, Ramon	41
Corominas Jordi	30
Egozcue, Juan José	31
Ferrer, Ivet	41
Garcia, Joan	51
Garfí, Marianna	31
Gens, Antonio	51
Huerta, Antonio	39
Jiménez, José Antonio	36
Oliver, Xavier	39
Oller, Sergio	31
Oñate, Eugenio	54
Roca, Pere	30
Sánchez-Arcilla, Agustín	30
Sánchez Vila, Xavier	34
Serra, Anna	36

<sup>19</sup> A data 24/11/2022. S'inclouen les persones amb producció indexada a WoS Core Collection durant el període 2012-2021. Únicament s'inclouen els índex H calculats per WoS a partir de perfils validats pels investigadors. En cas que cap perfil estigui validat, i existeixin més d'un perfil corresponent a un autor/a s'indica el índex H del perfil amb més publicacions vinculades