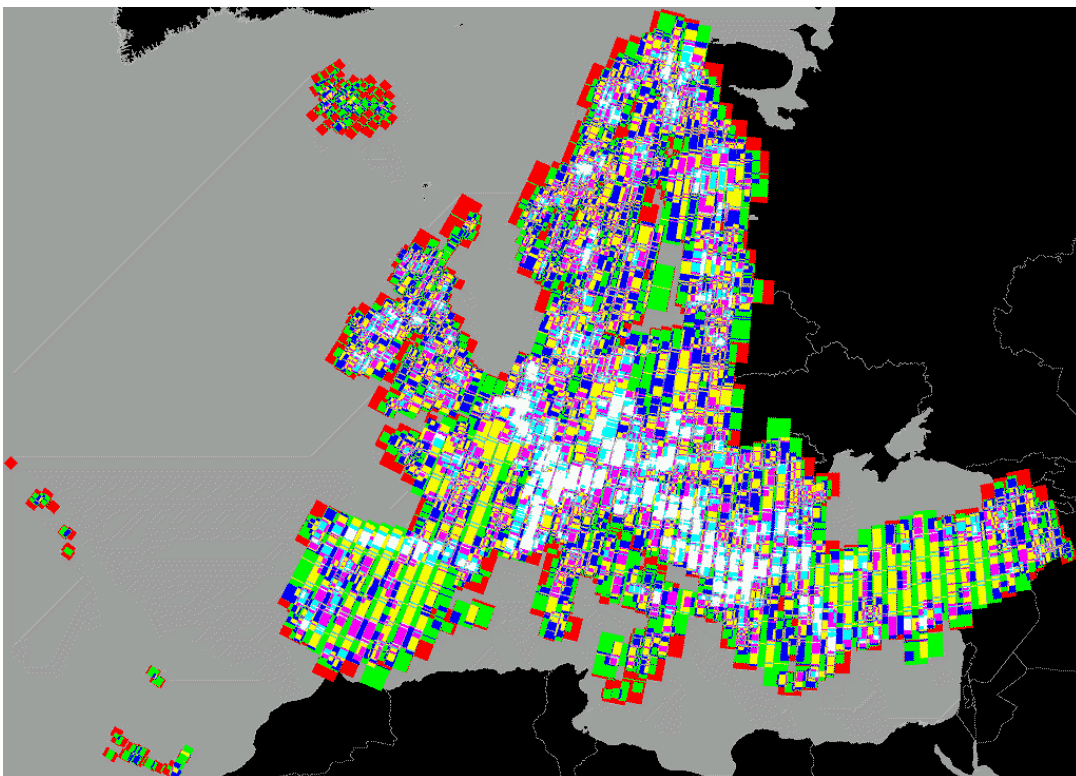# IMAGE-2006 Mosaic:
Analysis of Image Footprints

v.1.1

Pierre Soille, Conrad Bielski, and Joanna Nowak

JRC
EUROPEAN COMMISSION

ies
Institute for
Environment and
Sustainability

The mission of the Institute for Environment and Sustainability is to provide scientific-technical support to the European Union's Policies for the protection and sustainable development of the European and global environment.

Europe Direct is a service to help you find answers
to your questions about the European Union

Freephone number (*):

00 800 6 7 8 9 10 11

(*) Certain mobile telephone operators do not allow access to 00 800 numbers or these calls may be billed.

A great deal of additional information on the European Union is available on the Internet.
It can be accessed through the Europa server http://europa.eu/

IMAGE-2006 Mosaic:
Analysis of Image Footprints —v.1.1*—

Pierre Soille, Conrad Bielski, and Joanna Nowak
COSIN Action
IES-Spatial Data Infrastructures Unit

July 28, 2008

Abstract

This technical note presents a brief analysis of the footprints of the IMAGE-2006 imagery to be mosaiced. The first coverage (2080 images) is nearly covering the full target territory (some small gaps, the largest one being the Porto Santo Island, Madeira, Portugal). The second coverage (1619 images) accounts for 96.5% of the territory with Iceland and all Atlantic Islands missing plus a series of large gaps mainly in Scandinavia. Note that imagery was delivered as a union of country coverages rather than a truly European coverage. Consequently, some images overlapping two or more countries were delivered more than once. In addition, these duplicated images are not always exactly identical. Statistics are given for both full data footprints and data footprints reduced to the territory of the country for which the image was delivered.

Contents

---

*This documents superseeds [2].

1   Introduction

The JRC received the data directly from DLR on portable hard disks on the 28th of February 2008 with a series of updates through FTP [1]. The last update, on the 15th of April 2008, corrected for all the imagery of the Czech Republic not following the European reference grid specification. The received imagery in the ETRS-LAEA projection is summarised in table 1 for each coverage, for each sensor, and for both coverages.

Table 1:   Total number of images per sensor for first and second coverages. The number between parenthesis indicates the number of unique source images. Status as of Thu Apr 24 13:53:15 CEST 2008.

	1st coverage	2nd coverage	combined coverages
SPOT4	861 (836)	663 (633)	1524 (1453)
SPOT5	552 (541)	340 (335)	892 (871)
IRS-P6	667 (627)	616 (593)	1283 (1209)
total	2080 (2004)	1619 (1561)	3699 (3533)

The number between parenthesis indicates the number of unique source images. Indeed, the imagery for the European coverage has been delivered and processed on a country basis so that a scene overlapping two or more countries may have been orthorectified and delivered more than once with different ground control points and/or reference data. We observed that duplicate scenes are not always exactly identical (in geometry and sometimes even in data footprint extent). It follows that the data referred to as European corresponds in fact to a union of national data. There is therefore a risk that the final European mosaic will come down to a union of 38 country mosaics rather than a truly pan-European mosaic. Note that a total of 166 scenes have been delivered two or three times. The former case occured 148 times and the later 9 times (i.e., $166 = 148 + 9 \times 2$). Surprisingly, six scenes (4 SPOT4 and 2 SPOT5) were delivered for both coverages *and* for the very same country (all for either FI or NO). Even more surprising, two of these six duplicates are not identical. The first shows only slight intensity variations but the second shows variations in both intensity and geometry!

This report presents the footprint analysis on the basis of all delivered imagery for each coverage separately and for the combined coverage using both complete and country based data footprints. All measurements were performed on footprints resampled from 25m to 250m. National Territory Units at level 0 (Gisco version 9) rasterised at 250m were used as the reference for all calculations, see Fig. 1.

2   First coverage

Figures 2–4 illustrate the regions covered by the SPOT4, SPOT5, and IRS satellites respectively. The colour are used for coding the number of images overlapping a given area. The increasing order of overlap is mapped into the fundamental colour order and their combinations (white being used for more

Figure 1: Gisco version 9 NUTS0 vector file rasterised at 250m using ETRS-89 LAEA projection and the European grid. Serbia (code RS) and Montenegro (code ME) still appear within the same unit (dark blue region in the Balkan Peninsula).

than 7 or more overlapping image). From Fig. 4, it can be seen that most of target territory is covered by the IRS satellite. Noticeable exceptions include Iceland and all Atlantic Islands (beyond a series of gaps the major ones being in Scotland, Brittany, South Sweden, and the South-East corner of Turkey). The use of SPOT4 and SPOT5 imagery is mainly for covering these gaps (and cloudy regions covered by IRS), see Figs. 2 and 3. Figure 5 shows the degree of overlap when taking into account all three sensors. The maximum number of times a pixel is covered is equal to 10. Figure 6 shows a colour composition of the coverage by all 3 satellites.

Statistics for showing the percentage of country covered by each sensor and all sensors together are displayed in table 3. This table shows that most of the target territory is covered (total gap area accounting for 0.0015% of the whole target territory). The largest gap consists of the Porto Santo Island (42.8km^2), Madeira, Portugal. Smaller gaps can be found in Belgium (100 pixels gap), Denmark (Islet (Christianso), off Bornholm), Finland (20700 pixels in North of Finland), France (Belgium border gap and Islet in Glénan Islands), Iceland (a few coastal pixels), Italy (Islet in front of Ventotene Island), Sweden (Islet in the North Baltic sea), and UK (Saint Kilad Island). Note that the analysis is based on NUTS0 codes. Figure 7 and 9 indicates the positions of all these gaps.
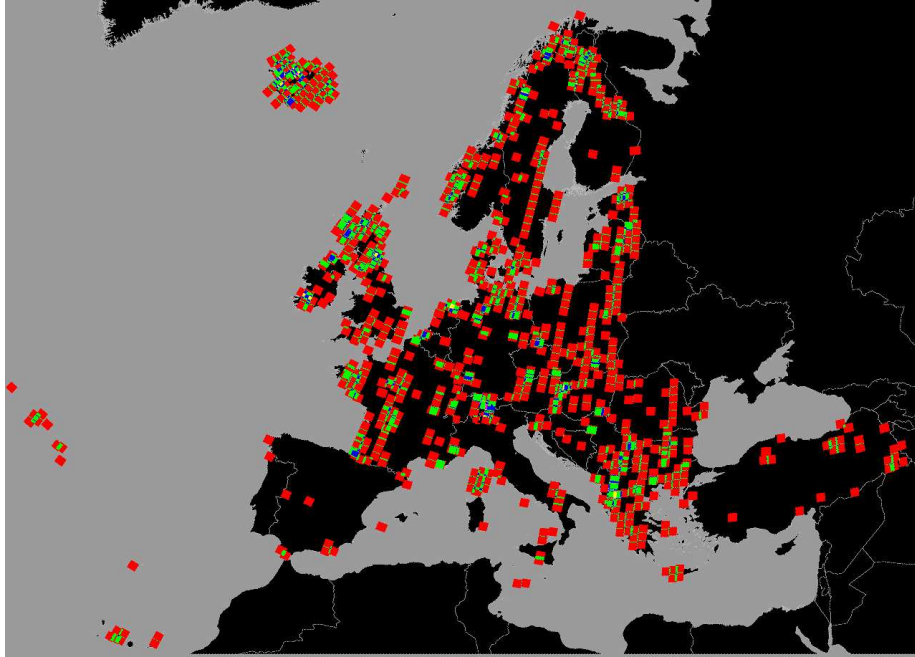
Figure 2: SPOT 4 footprints (first coverage) based on data ROIs. The colours are used for coding the number n of images covering a given pixel: red ($n = 1$), green ($n = 2$), blue ($n = 3$), yellow ($n = 4$), magenta ($n = 5$), cyan ($n = 6$). $n_{max} = 6$.
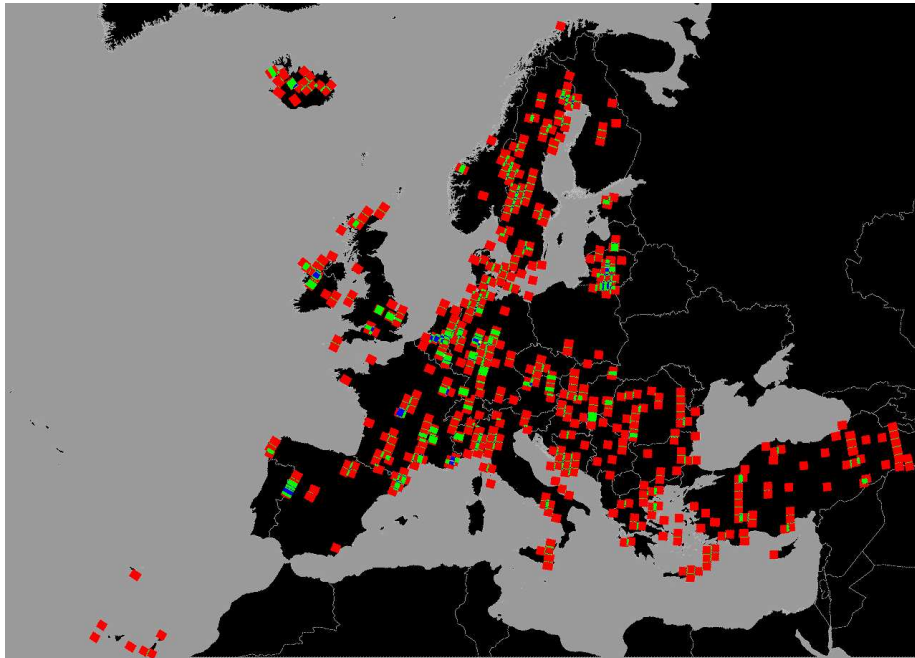
Figure 3: SPOT 5 footprints (first coverage) based on data ROIs. The colours are used for coding the number n of images covering a given pixel: red ($n = 1$), green ($n = 2$), blue ($n = 3$), yellow ($n = 4$). $n_{max} = 4$. Land (resp. sea) regions not covered are painted in black (resp. light grey)
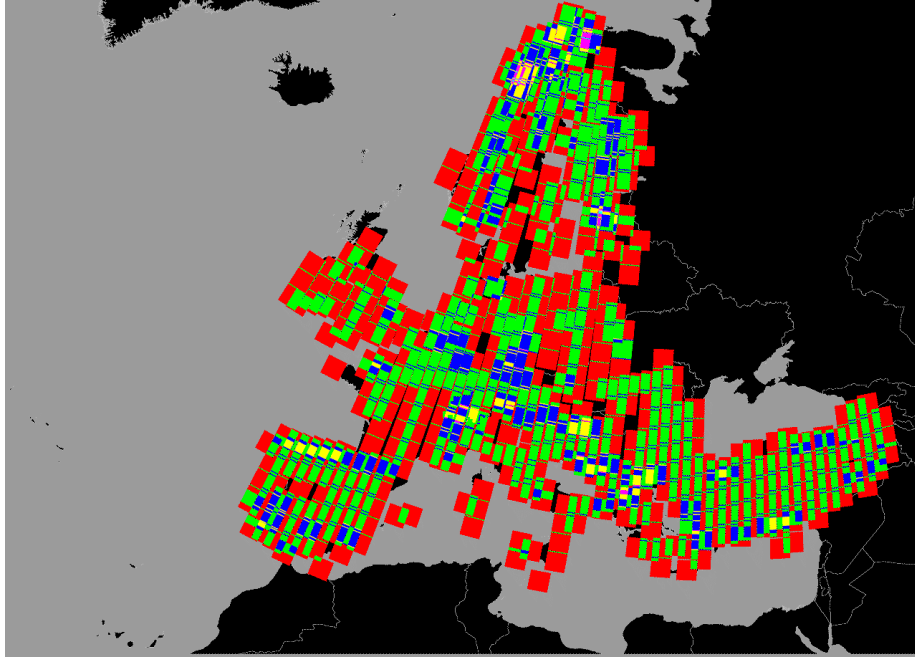
Figure 4: IRS-P6 LISS III-3 footprints (first coverage) based on data ROIs. The colours are used for coding the number n of images covering a given pixel: red ($n = 1$), green ($n = 2$), blue ($n = 3$), yellow ($n = 4$), magenta ($n = 5$), cyan ($n = 6$), and white $n \geq 7$. $n_{\max} = 7$. Land (resp. sea) regions not covered are painted in black (resp. light grey).
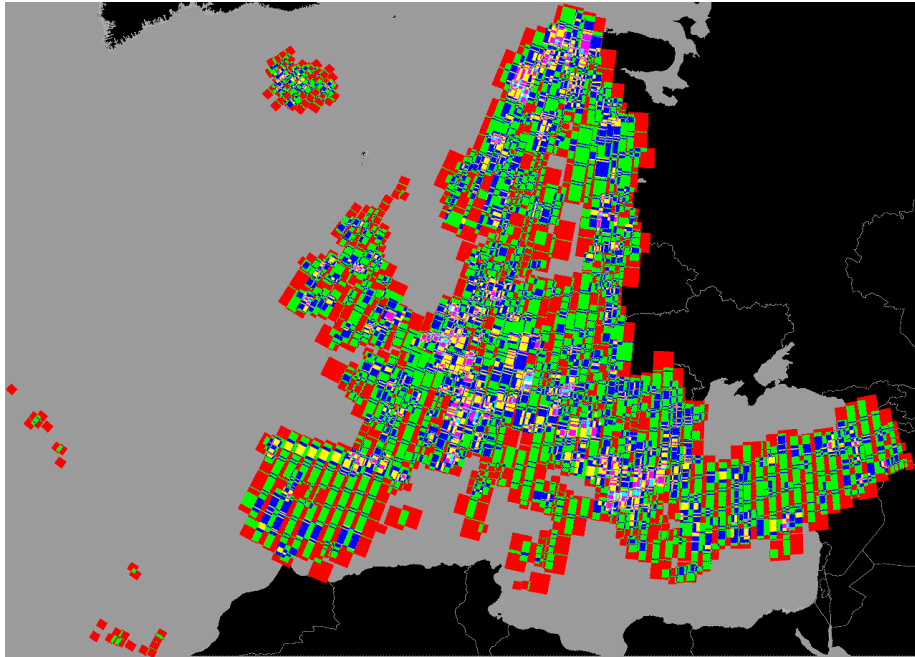
Figure 5: IMAGE 2006 first coverage (all sensors together). The colours are used for coding the number n of images covering a given pixel: red ($n = 1$), green ($n = 2$), blue ($n = 3$), yellow ($n = 4$), magenta ($n = 5$), cyan ($n = 6$), and white ($n \geq 7$). $n_{\max} = 9$.
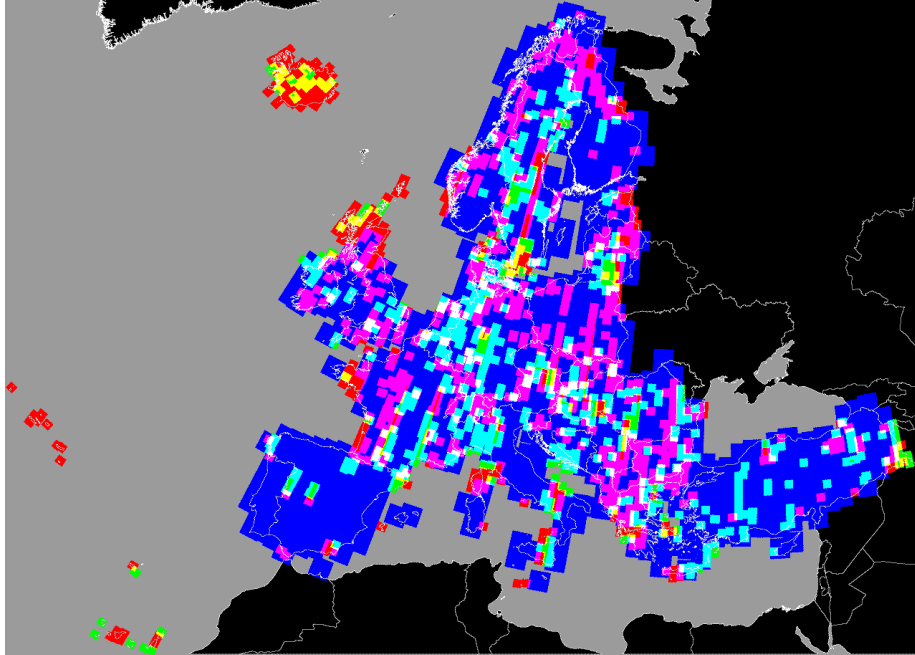
Figure 6: IMAGE 2006 first coverage. The colours are used for coding the type of satellite covering a given area: red for SPOT 4, green for SPOT 5, blue for IRS. The combinations of these 3 fundamental colours indicate the type of combination, e.g., yellow for areas covered both by SPOT 4 and SPOT 5 and white for regions covered by all 3 satellites. For example, regions not covered by IRS appear in either red, green or yellow. Land (resp. sea) regions not covered are painted in black (resp. light grey).

Table 2: First coverage statistics based on data regions of interest. The code CS refers to the former union of Serbia (RS) and Montenegro (ME).

Code[a]	area[b] (km^2)	% with SP4	% with SP5	% with IL3	% with ALL	# missing pixels	Full coverage?
AL	28534	74.77	12.18	99.82	100.00	0	yes
AT	83930	51.47	27.66	92.59	100.00	0	yes
BA	51274	18.62	34.74	100.00	100.00	0	yes
BE	30664	28.15	63.79	100.00	≈100.00	100	no
BG	110796	61.25	27.10	100.00	100.00	0	yes
CH	41288	60.49	40.74	98.91	100.00	0	yes
CS	102572	45.29	31.28	93.25	100.00	0	yes
CY	9247	0.00	8.39	100.00	100.00	0	yes
CZ	78866	41.41	30.10	92.97	100.00	0	yes
DE	357672	34.76	39.99	96.88	100.00	0	yes
DK	43360	63.33	55.94	71.45	≈100.00	200	no
EE	45327	44.70	14.81	86.22	100.00	0	yes
ES	505984	6.96	12.01	95.28	100.00	0	yes
FI	337788	30.09	6.69	97.07	≈100.00	20700	no
FR	549164	39.99	23.65	92.24	≈100.00	3700	no
GR	132025	59.90	34.51	87.91	≈100.00	1300	no
HR	56631	18.22	32.96	99.62	≈100.00	500	no
HU	93016	49.89	50.51	86.91	100.00	0	yes
IE	70175	49.98	32.24	98.39	100.00	0	yes
IS	102906	94.31	45.07	0.00	≈100.00	200	no
IT	301429	15.52	29.21	93.00	≈100.00	500	no
LI	160	100.00	0.00	100.00	100.00	0	yes
LT	64890	49.75	52.75	73.59	≈100.00	3600	no
LU	2595	37.15	77.78	100.00	100.00	0	yes
LV	64603	64.40	14.08	89.47	100.00	0	yes
MK	25153	55.58	0.88	100.00	100.00	0	yes
MT	314	0.00	0.00	100.00	100.00	0	yes
NL	37357	48.61	59.24	98.98	100.00	0	yes
NO	323456	41.05	6.59	98.47	≈100.00	100	no
PL	311894	42.47	8.68	98.14	100.00	0	yes
PT	92140	5.33	3.42	96.23	99.95	68500	no
RO	237938	32.49	32.87	93.42	100.00	0	yes
SE	449446	29.95	40.04	87.02	≈100.00	2200	no
SI	20272	56.64	12.24	100.00	100.00	0	yes
SK	49024	64.86	34.42	96.31	100.00	0	yes
TR	780122	11.61	21.66	98.18	100.00	0	yes
UK	244706	55.11	17.83	83.86	99.99	26000	no
ALL	5836738	33.51	24.54	92.34	≈100.00	127500.0	no

[a] Normalised country codes, all 38 participating countries are typeset in bold.
[b] Area of country calculated from Gisco version 9 NUTS vector file rasterised at 250m using ETRS-89 LAEA projection and the European grid.

Table 3: First coverage statistics based on country regions of interest. The code CS refers to the former union of Serbia (RS) and Montenegro (ME).

Code[a]	area[b] (km^2)	% with SP4	% with SP5	% with IL3	% with ALL	# missing pixels	Full coverage?
AL	28534	66.39	7.29	99.82	100.00	0	yes
AT	83930	40.81	16.68	88.27	100.00	0	yes
BA	51274	18.18	28.16	100.00	100.00	0	yes
BE	30664	17.08	51.70	100.00	≈100.00	100	no
BG	110796	57.25	26.54	92.02	100.00	0	yes
CH	41288	52.88	36.76	83.22	100.00	0	yes
CS	102572	45.05	30.14	87.17	100.00	0	yes
CY	9247	0.00	8.39	100.00	100.00	0	yes
CZ	78866	34.32	29.25	86.80	100.00	0	yes
DE	357672	30.86	37.72	96.82	100.00	0	yes
DK	43360	61.52	55.23	53.27	≈100.00	200	no
EE	45327	44.67	14.81	86.21	100.00	0	yes
ES	505984	6.52	10.66	94.17	100.00	0	yes
FI	337788	27.65	6.10	97.07	≈100.00	20700	no
FR	549164	39.43	23.54	90.85	≈100.00	3700	no
GR	132021	59.03	31.49	82.20	≈100.00	7100	no
HR	56631	8.79	23.80	93.21	≈100.00	500	no
HU	93016	43.42	47.01	73.73	100.00	0	yes
IE	70175	45.72	32.24	98.39	100.00	0	yes
IS	102906	94.31	45.07	0.00	≈100.00	200	no
IT	301429	14.01	27.57	92.99	≈100.00	500	no
LI	160	100.00	0.00	100.00	100.00	0	yes
LT	64890	37.05	52.66	72.46	≈100.00	3600	no
LU	2595	9.71	77.74	100.00	100.00	0	yes
LV	64603	62.72	10.11	85.61	100.00	0	yes
MK	25153	21.39	0.24	100.00	100.00	0	yes
MT	314	0.00	0.00	100.00	100.00	0	yes
NL	37357	47.19	58.39	92.92	100.00	0	yes
NO	323456	40.05	5.79	98.47	≈100.00	100	no
PL	311894	41.34	8.37	97.76	100.00	0	yes
PT	92140	3.97	3.42	95.70	99.95	68500	no
RO	237938	29.17	30.27	93.42	100.00	0	yes
SE	449446	28.30	39.68	82.24	≈100.00	2200	no
SI	20272	49.67	11.78	94.87	100.00	0	yes
SK	49024	49.51	31.34	83.28	100.00	0	yes
TR	780122	10.88	21.36	98.18	100.00	0	yes
UK	244706	55.11	17.83	82.92	99.99	26000	no
ALL	5836734	31.22	23.25	90.40	≈100.00	133100.0	no

[a] Normalised country codes, all 38 participating countries are typeset in bold.
[b] Area of country calculated from Gisco version 9 NUTS vector file rasterised at 250m using ETRS-89 LAEA projection and the European grid.

Figure 7: Position of the gaps in coverage 1 (part 1/3): BE, FR, DK, and FI.
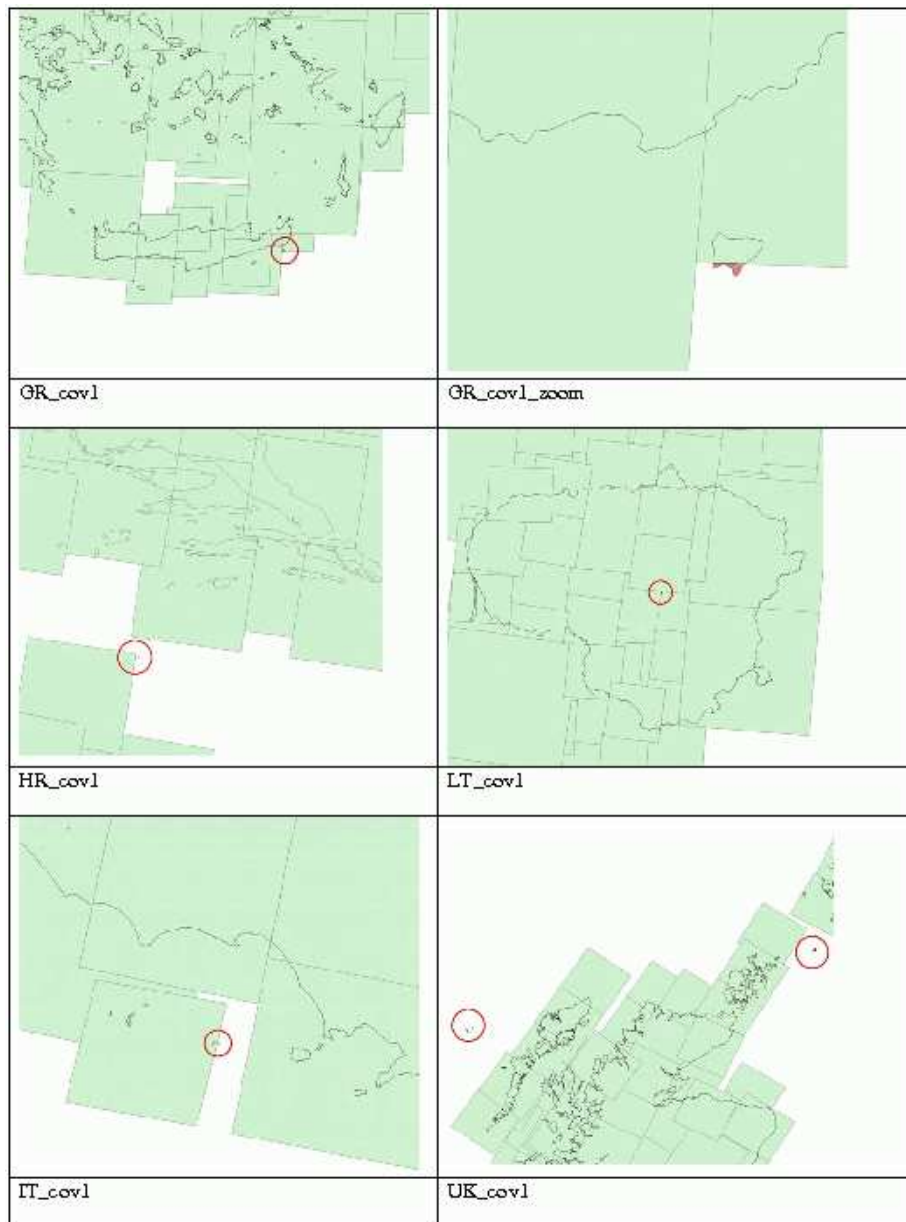
Figure 8: Position of the gaps in coverage 1 (part 2/3): GR, HR, LT, IT, and UK.
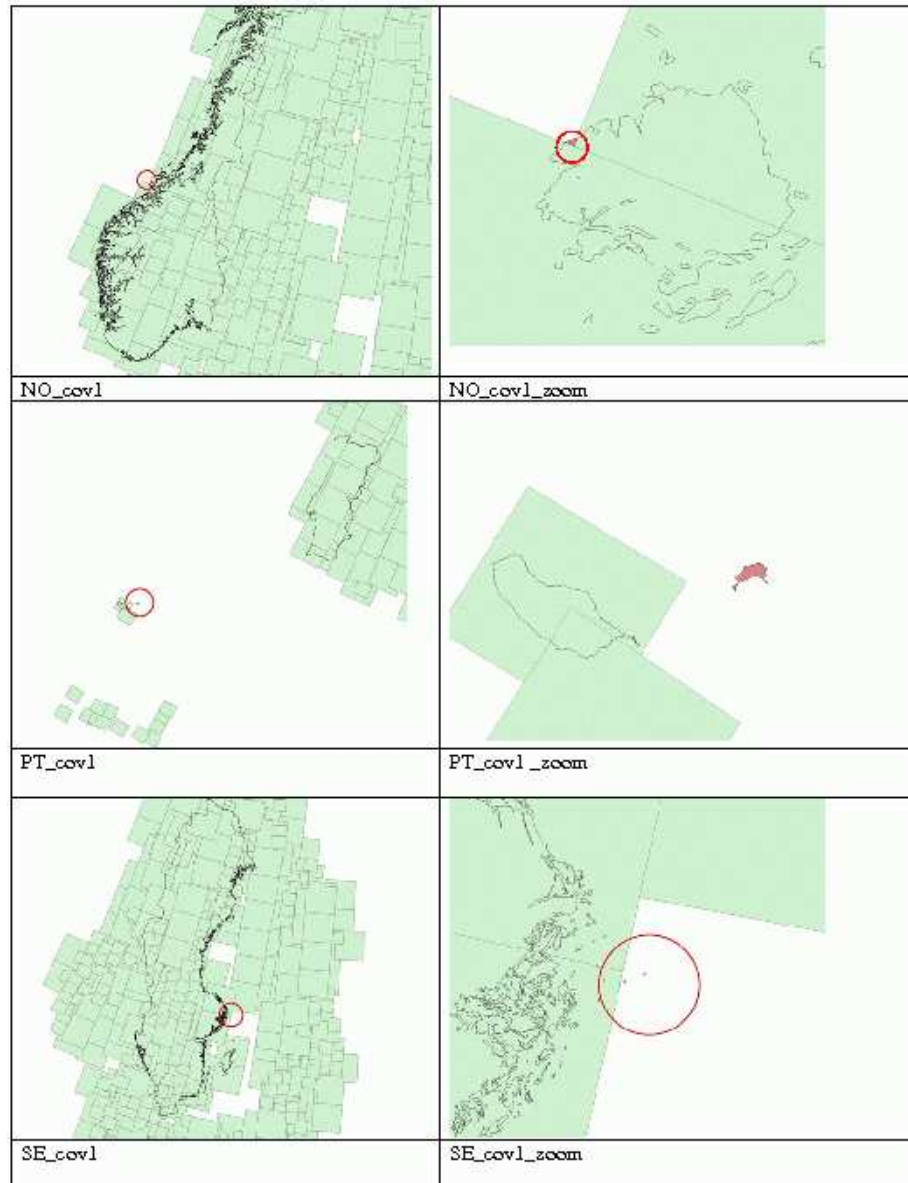
Figure 9: Position of the gaps in coverage 1 (part 3/3): NO, PT, and SE.

3   Second coverage

Figures 10–12 illustrate the regions covered by the SPOT4, SPOT5, and IRS satellites respectively. The colour are used for coding the number of images overlapping a given area. The increasing order of overlap is mapped into the fundamental colour order and their combinations (white being used for more than 6 overlapping image). In accordance with the first coverage, it can be seen that most of target territory is covered by this sensor, see Fig. 12. Figure 13 shows the degree of overlap when taking into account all three sensors. The maximum number of times a pixel is covered is equal to 12. Figure 14 shows a colour composition of the coverage by all 3 satellites. This image further illustrates that most of the target territory is covered by IRS.

Statistics for showing the percentage of country covered by each sensor and all sensors together are displayed in table 5.
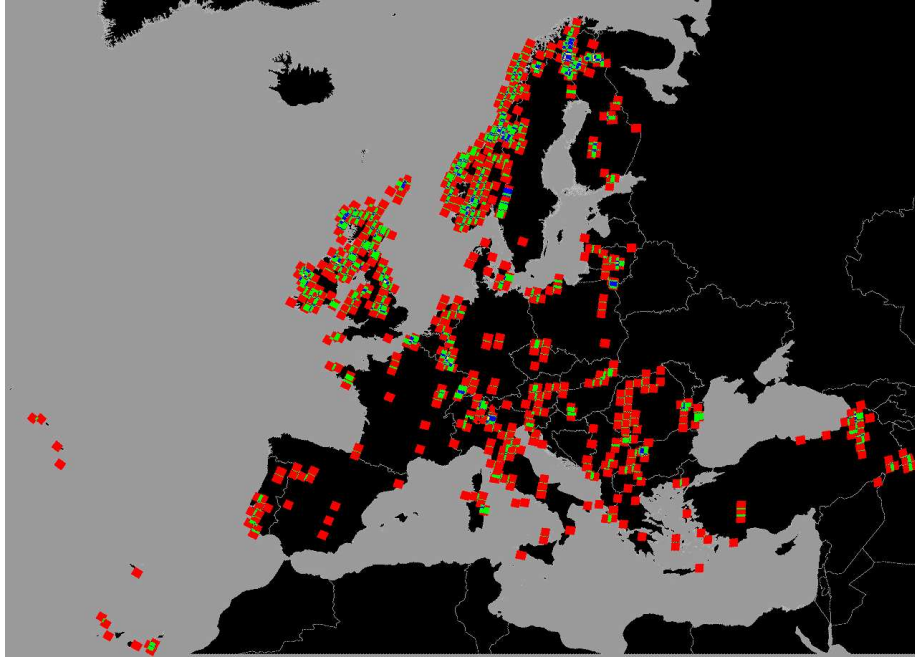
Figure 10: SPOT 4 footprints (second coverage) based on data ROIs. The colours are used for coding the number n of images covering a given pixel: red ($n = 1$), green ($n = 2$), blue ($n = 3$), yellow ($n = 4$), magenta ($n = 5$). $n_{\max} = 5$.
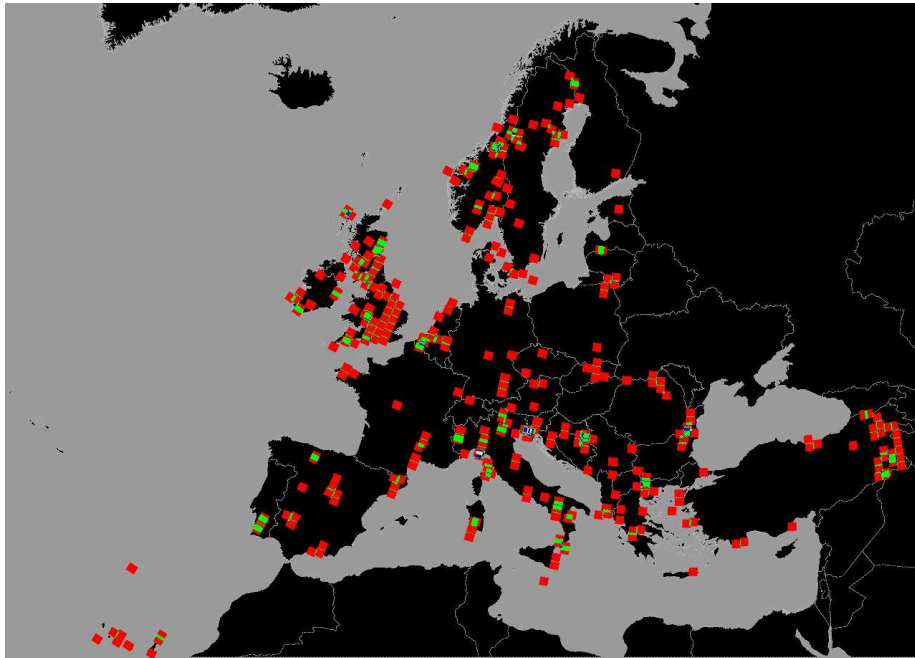
Figure 11: SPOT 5 footprints (second coverage) based on data ROIs. The colours are used for coding the number n of images covering a given pixel: red ($n = 1$), green ($n = 2$), blue ($n = 3$), yellow ($n = 4$), magenta ($n = 5$). $n_{\max} = 5$. Land (resp. sea) regions not covered are painted in black (resp. light grey)
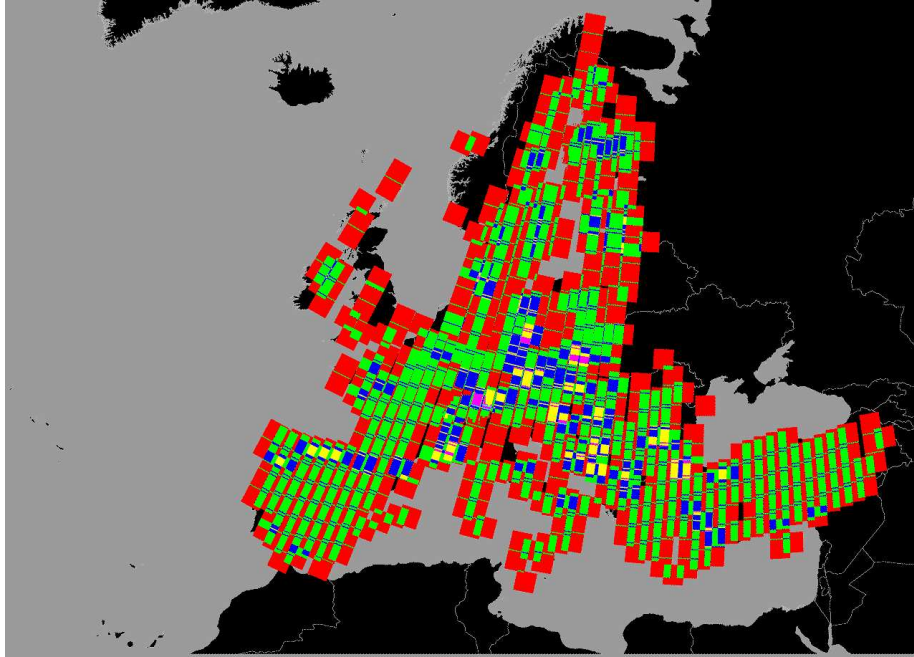
Figure 12: IRS-P6 LISS III-3 footprints (second coverage) based on data ROIs. The colours are used for coding the number n of images covering a given pixel: red ($n = 1$), green ($n = 2$), blue ($n = 3$), yellow ($n = 4$), magenta ($n = 5$), cyan ($n = 6$), and white $n \geq 7$. $n_{\max} = 7$. Land (resp. sea) regions not covered are painted in black (resp. light grey).
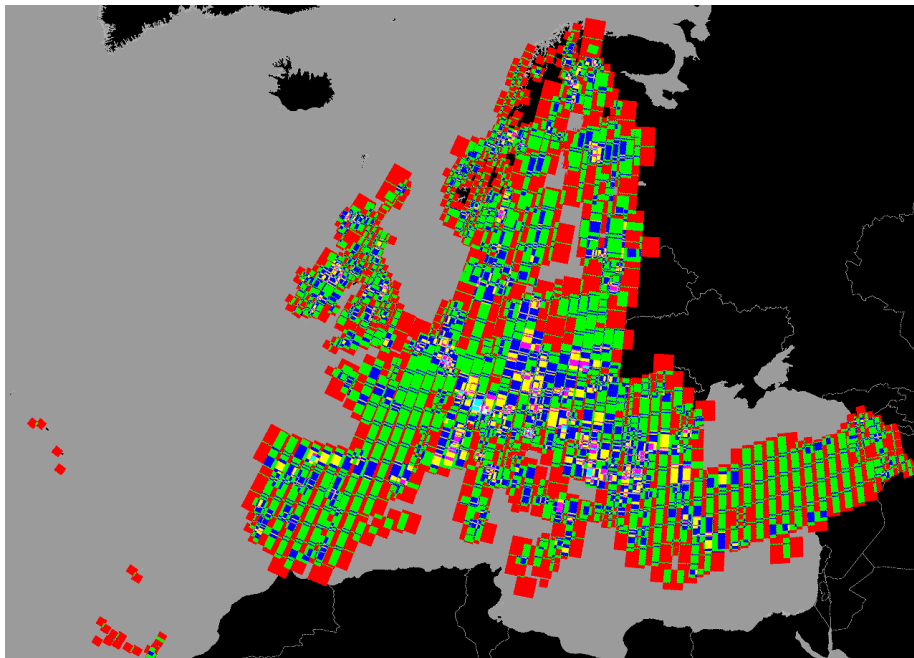
Figure 13: IMAGE 2006 second coverage (all sensors together). The colours are used for coding the number n of images covering a given pixel: red ($n = 1$), green ($n = 2$), blue ($n = 3$), yellow ($n = 4$), magenta ($n = 5$), cyan ($n = 6$), and white ($n \geq 7$). $n_{\max} = 9$.
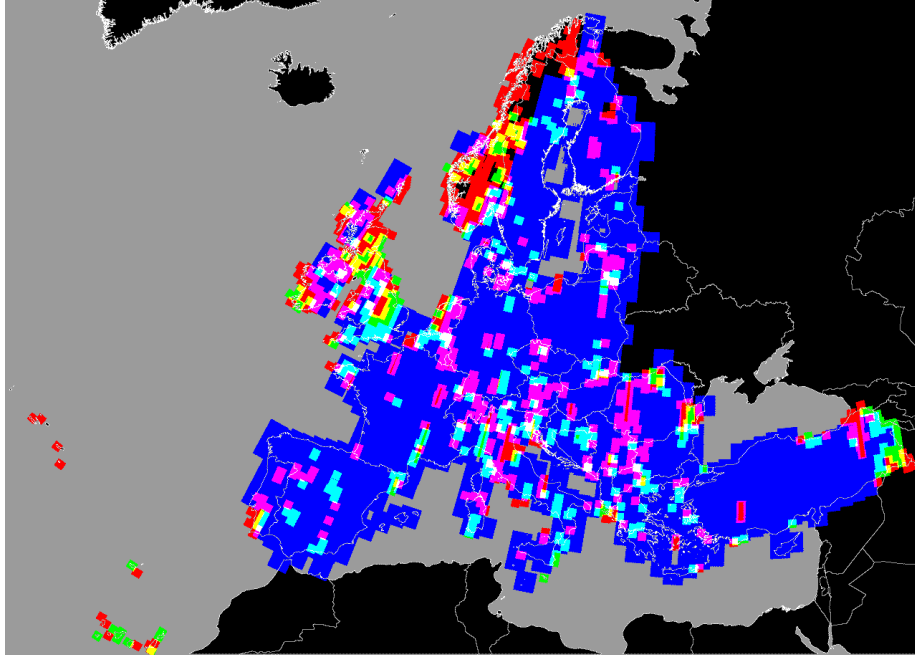
Figure 14: IMAGE 2006 second coverage. The colours are used for coding the type of satellite covering a given area: red for SPOT 4, green for SPOT 5, blue for IRS. The combinations of these 3 fundamental colours indicate the type of combination, e.g., yellow for areas covered both by SPOT 4 and SPOT 5 and white for regions covered by all 3 satellites. For example, regions not covered by IRS appear in either red, green or yellow. Land (resp. sea) regions not covered are painted in black (resp. light grey).

Table 4: Second coverage statistics based on data regions of interest. The code CS refers to the former union of Serbia (RS) and Montenegro (ME). Note that Iceland (IS) is not appearing in this table since no imagery is available in the second coverage for this country.

Code[a]	area[b] (km^2)	% with SP4	% with SP5	% with IL3	% with ALL	# missing pixels	Full coverage?
AL	28534	26.83	23.91	96.93	100.00	0	yes
AT	83930	44.10	15.46	100.00	100.00	0	yes
BA	51274	12.95	34.82	98.82	100.00	0	yes
BE	30664	34.68	39.37	99.12	100.00	0	yes
BG	110796	17.42	20.19	97.24	100.00	0	yes
CH	41288	45.90	6.85	99.99	100.00	0	yes
CS	102572	40.95	12.13	98.50	100.00	0	yes
CY	9247	0.00	0.00	100.00	100.00	0	yes
CZ	78866	22.69	12.76	99.83	100.00	0	yes
DE	357672	15.25	7.86	99.65	100.00	0	yes
DK	43360	38.20	13.77	99.43	100.00	0	yes
EE	45327	0.00	8.00	100.00	100.00	0	yes
ES	505984	7.66	11.98	98.07	100.00	0	yes
FI	329895	23.49	3.66	90.49	97.66	12649900	no
FR	549167	11.77	6.25	97.81	100.00	0	yes
GR	132025	15.65	22.83	97.04	≈100.00	100	no
HR	56631	10.58	29.71	98.09	100.00	0	yes
HU	93016	26.95	3.70	97.06	100.00	0	yes
IE	70175	70.51	24.09	72.15	100.00	0	yes
IT	301429	31.11	27.80	92.84	100.00	0	yes
LI	160	100.00	0.00	100.00	100.00	0	yes
LT	64892	44.22	16.49	100.00	100.00	0	yes
LU	2595	100.00	0.00	97.55	100.00	0	yes
LV	64603	13.99	4.27	99.96	100.00	0	yes
MK	25153	38.80	17.50	99.92	100.00	0	yes
MT	314	0.00	100.00	0.00	100.00	0	yes
NL	37357	69.17	39.92	72.21	100.00	0	yes
NO	274961	71.48	22.15	20.59	85.01	77592300	no
PL	311894	12.46	4.36	98.11	100.00	0	yes
PT	91223	36.15	11.80	89.30	98.96	1535000	no
RO	237938	37.98	12.73	87.44	100.00	0	yes
SE	402998	15.87	13.36	78.71	89.67	74319400	no
SI	20272	44.60	33.99	96.61	100.00	0	yes
SK	49024	18.50	24.78	98.99	100.00	0	yes
TR	780122	9.20	9.56	93.68	100.00	0	yes
UK	244699	56.37	50.08	59.50	99.99	36100	no
ALL	5630077	23.61	14.21	86.77	96.46	3.30784e+08	no

[a] Normalised country codes, all 38 participating countries are typeset in bold.
[b] Area of country calculated from Gisco version 9 NUTS vector file rasterised at 250m using ETRS-89 LAEA projection and the European grid.

Table 5: Second coverage statistics based on country regions of interest. The code CS refers to the former union of Serbia (RS) and Montenegro (ME). Note that Iceland (IS) is not appearing in this table since no imagery is available in the second coverage for this country.

Code[a]	area[b] (km^2)	% with SP4	% with SP5	% with IL3	% with ALL	# miss-ing pixels	Full cover-age?
AL	28534	10.89	12.82	96.93	100.00	0	yes
AT	83930	37.44	15.42	100.00	100.00	0	yes
BA	51274	12.95	29.79	88.14	100.00	0	yes
BE	30664	29.73	26.99	80.86	100.00	0	yes
BG	110796	14.14	19.41	94.52	100.00	0	yes
CH	41288	41.81	1.64	96.91	100.00	0	yes
CS	102572	32.54	9.55	97.64	100.00	0	yes
CY	9247	0.00	0.00	100.00	100.00	0	yes
CZ	78866	22.69	12.14	98.25	100.00	0	yes
DE	357672	12.65	6.99	99.63	100.00	0	yes
DK	43360	38.20	13.77	94.07	100.00	0	yes
EE	45327	0.00	8.00	100.00	100.00	0	yes
ES	505984	6.58	12.07	98.07	100.00	0	yes
FI	329717	22.65	2.64	90.43	97.61	12933500	no
FR	549165	10.52	5.88	97.79	≈100.00	1900	no
GR	132025	13.29	22.10	97.04	≈100.00	100	no
HR	56631	8.14	16.19	95.97	100.00	0	yes
HU	93016	22.58	2.99	94.85	100.00	0	yes
IE	70175	63.34	19.25	72.15	100.00	0	yes
IT	301429	30.73	27.74	92.59	100.00	0	yes
LI	160	100.00	0.00	100.00	100.00	0	yes
LT	64892	41.83	12.16	97.94	100.00	0	yes
LU	2595	100.00	0.00	35.81	100.00	0	yes
LV	64603	9.30	3.69	99.89	100.00	0	yes
MK	25153	19.09	8.34	99.76	100.00	0	yes
MT	314	0.00	100.00	0.00	100.00	0	yes
NL	37357	69.17	33.78	45.01	100.00	0	yes
NO	260664	69.63	22.15	17.27	80.59	100468000	no
PL	311894	11.37	3.69	97.15	100.00	0	yes
PT	91223	36.15	11.80	88.82	98.96	1535000	no
RO	237938	36.85	12.43	85.11	100.00	0	yes
SE	393877	13.93	10.07	78.47	87.64	88913800	no
SI	20272	41.51	32.86	75.30	100.00	0	yes
SK	49024	12.08	16.68	98.91	100.00	0	yes
TR	780122	8.97	9.56	93.50	100.00	0	yes
UK	244699	56.37	50.08	58.01	99.99	36100	no
ALL	5606480	21.88	13.07	85.61	96.05	3.6854e+08	no

[a] Normalised country codes, all 38 participating countries are typeset in bold.
[b] Area of country calculated from Gisco version 9 NUTS vector file rasterised at 250m using ETRS-89 LAEA projection and the European grid.

4 Merged coverages

Figures 16–18 illustrate the regions covered by the SPOT4, SPOT5, and IRS satellites respectively. The colour are used for coding the number of images overlapping a given area. The increasing order of overlap is mapped into the fundamental colour order and their combinations (white being used for more than 6 overlapping image). From Fig. 18, it can be seen that most of target territory is covered by this sensor. Noticeable exceptions include Iceland and all Atlantic Islands (beyond a series of small gaps). Figure 19 shows the degree of overlap when taking into account all three sensors. The maximum number of times a pixel is covered is equal to 16. Figure 20 shows a colour composition of the coverage by all 3 satellites.

Statistics for showing the percentage of country covered by each sensor and all sensors together are displayed in table 8. From this table, it can be seen that only 4 countries are not fully covered: Iceland (a few coastal pixels), Portugal (Porto Santo Island, Madeira), Sweden (Islet in the North Baltic sea), and UK (Saint Kilad Island). Note that the analysis is based on NUTS0 codes. Some islands such as Guernsey (a Channel Island) have separate codes so that their coverage is not secured and not taken into account in the table (in fact it happens that Guernsey Island is not covered).

Table 6 shows the maximal number of times a pixel is covered for each sensor and coverage. For example, in the first coverage there is a least one pixel that is covered by 10 different images (taking into account data ROIs). When considering all sensors and the combined coverages, there is a least one pixel that is covered 14 different images! Figure 15 shows the complete distributions.

Table 6: Maximum number of times a pixel is covered for each sensor and coverage (based on data/country regions of interest, the second value being given only when it differs from the first).

	SPOT4	SPOT5	IRS-P6	ALL
1st coverage	6/5	5	7	10/9
2nd coverage	8	5	6	12/10
merged coverages	8	6	11	14/13
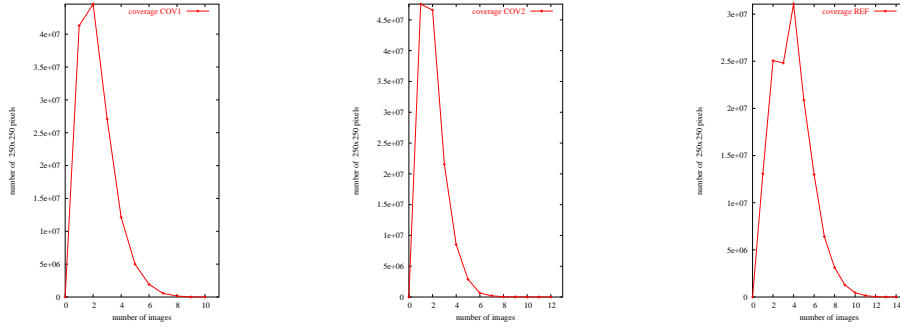
Figure 15: Number of pixels vs. number of images available for these pixels for each coverage (all sensors combined and using data ROIs). Coverage 12 means merged coverages.

Table 7: Combined coverage statistics based on data regions of interest. The code CS refers to the former union of Serbia (RS) and Montenegro (ME).

Code[a]	area[b] (km^2)	% with SP4	% with SP5	% with IL3	% with ALL	# missing pixels	Full coverage?
AL	28534	68.42	17.32	99.84	100.00	0	yes
AT	83930	64.68	28.37	100.00	100.00	0	yes
BA	51274	24.59	43.98	100.00	100.00	0	yes
BE	30664	39.19	59.02	100.00	100.00	0	yes
BG	110796	60.06	42.92	97.86	100.00	0	yes
CH	41288	60.32	36.86	100.00	100.00	0	yes
CS	102572	58.42	32.73	100.00	100.00	0	yes
CY	9247	0.00	8.39	100.00	100.00	0	yes
CZ	78866	44.83	36.70	99.73	100.00	0	yes
DE	357672	40.59	40.83	100.00	100.00	0	yes
DK	43360	80.47	60.67	97.53	100.00	0	yes
EE	45327	44.67	22.81	100.00	100.00	0	yes
ES	505984	12.37	20.48	98.07	100.00	0	yes
FI	337801	37.61	8.06	100.00	100.00	0	yes
FR	549167	43.85	26.23	98.82	100.00	0	yes
GR	132025	61.13	41.59	98.04	100.00	0	yes
HR	56631	16.35	38.86	100.00	100.00	0	yes
HU	93016	54.28	49.91	97.98	100.00	0	yes
IE	70175	74.12	47.94	100.00	100.00	0	yes
IS	102906	94.31	45.07	0.00	≈100.00	200	no
IT	301429	39.46	45.79	99.89	100.00	0	yes
LI	160	100.00	0.00	100.00	100.00	0	yes
LT	64892	61.17	55.37	98.01	100.00	0	yes
LU	2595	100.00	77.74	44.40	100.00	0	yes
LV	64603	65.66	13.14	100.00	100.00	0	yes
MK	25153	32.99	8.34	100.00	100.00	0	yes
MT	314	0.00	100.00	100.00	100.00	0	yes
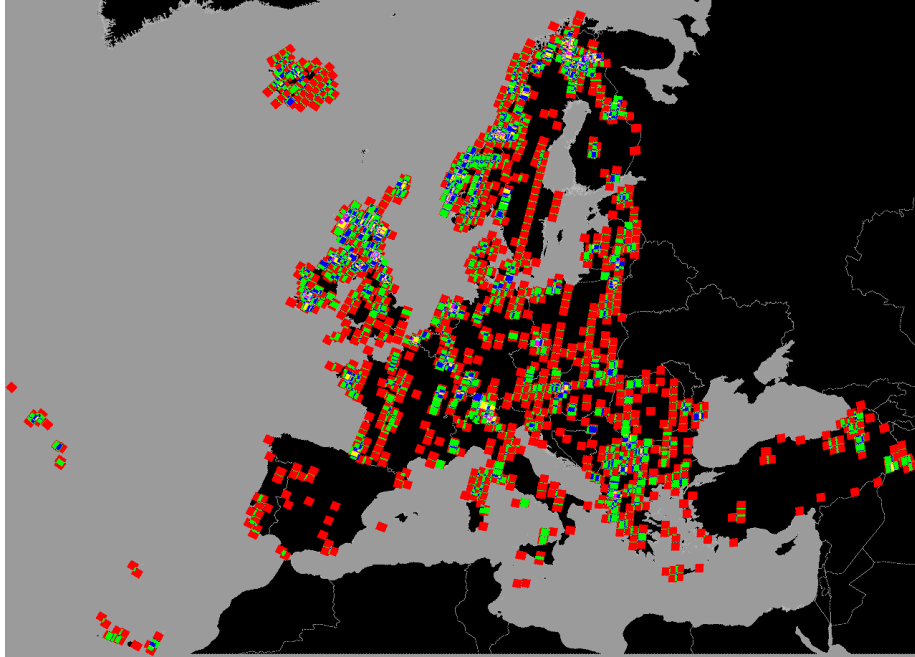
Figure 16: SPOT 4 footprints (combined coverages) based on data ROIs. The colours are used for coding the number n of images covering a given pixel: red ($n = 1$), green ($n = 2$), blue ($n = 3$), yellow ($n = 4$), magenta ($n = 5$), cyan ($n = 6$), and white $n \geq 7$. $n_{\mathrm{max}} = 9$.
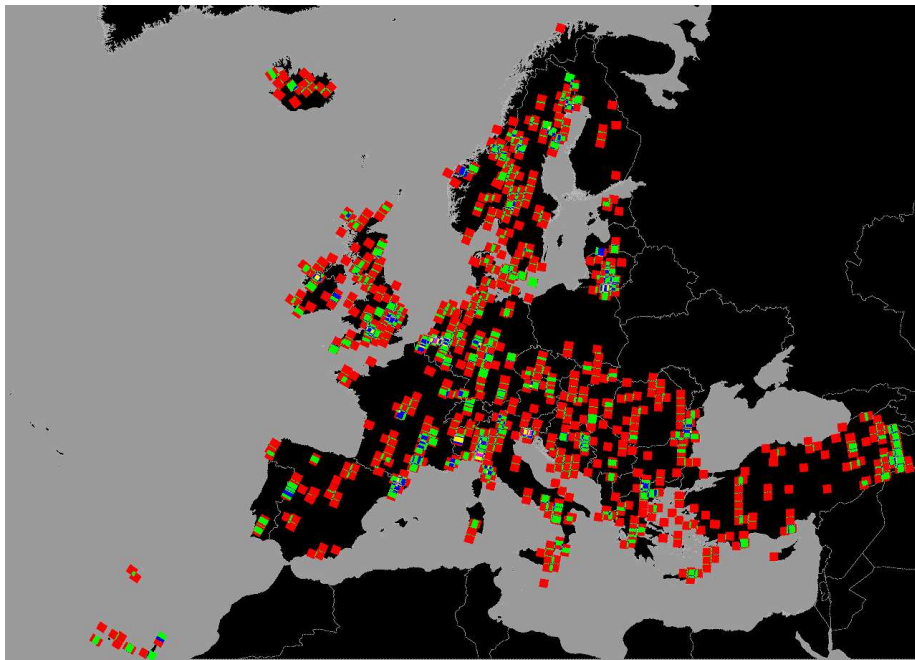
Figure 17: SPOT 5 footprints (combined coverages) based on data ROIs. The colours are used for coding the number n of images covering a given pixel: red ($n = 1$), green ($n = 2$), blue ($n = 3$), yellow ($n = 4$), magenta ($n = 5$), cyan ($n = 6$). $n_{\mathrm{max}} = 6$. Land (resp. sea) regions not covered are painted in black (resp. light grey)
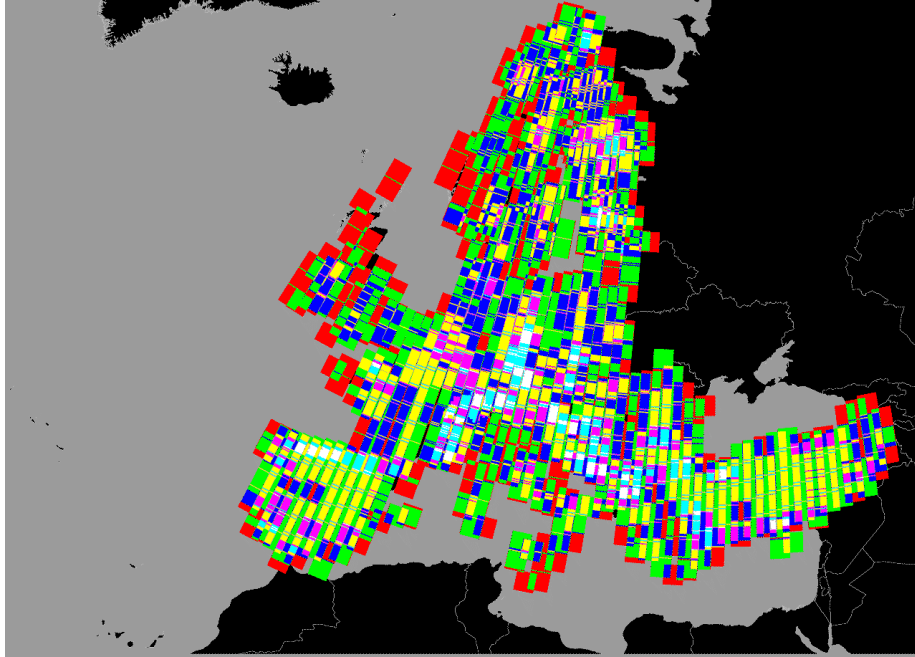
Figure 18: IRS-P6 LISS III-3 footprints (combined coverages) based on data ROIs. The colours are used for coding the number n of images covering a given pixel: red ($n = 1$), green ($n = 2$), blue ($n = 3$), yellow ($n = 4$), magenta ($n = 5$), cyan ($n = 6$), and white ($n \geq 7$). $n_{\max} = 11$. Land (resp. sea) regions not covered are painted in black (resp. light grey).
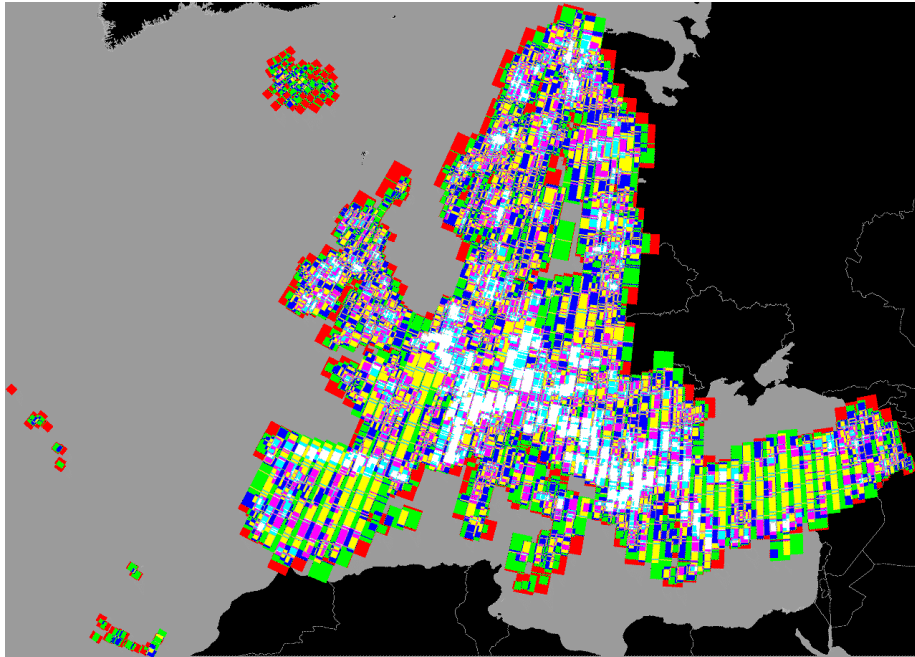
Figure 19: IMAGE 2006 combined coverages (all sensors together). The colours are used for coding the number n of images covering a given pixel: red ($n = 1$), green ($n = 2$), blue ($n = 3$), yellow ($n = 4$), magenta ($n = 5$), cyan ($n = 6$), and white ($n \geq 7$). $n_{\max} = 16$.
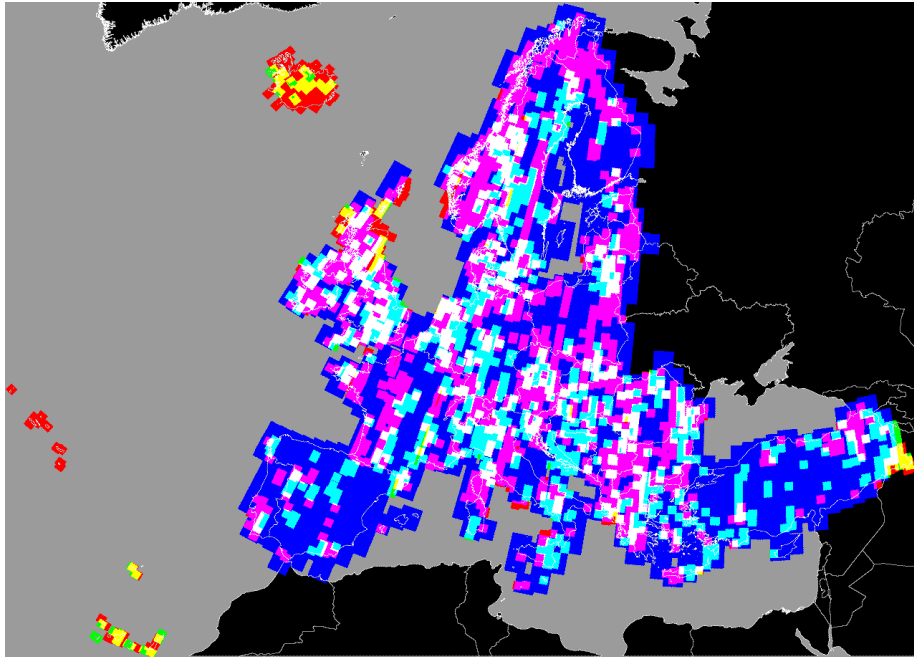
Figure 20: IMAGE 2006 combined coverages. The colours are used for coding the type of satellite covering a given area: red for SPOT 4, green for SPOT 5, blue for IRS. The combinations of these 3 fundamental colours indicate the type of combination, e.g., yellow for areas covered both by SPOT 4 and SPOT 5 and white for regions covered by all 3 satellites. For example, regions not covered by IRS appear in either red, green or yellow. Land (resp. sea) regions not covered are painted in black (resp. light grey).

Code[a]	area[b] (km^2)	% with SP4	% with SP5	% with IL3	% with ALL	# miss- ing pixels	Full cover- age?
NL	37357	82.22	76.52	98.81	100.00	0	yes
NO	323457	77.84	24.41	98.58	100.00	0	yes
PL	311894	46.56	9.80	99.21	100.00	0	yes
PT	92140	38.55	14.99	96.14	99.95	68500	no
RO	237938	56.74	40.32	99.03	100.00	0	yes
SE	449446	39.66	43.79	96.71	≈100.00	2200	no
SI	20272	82.40	41.18	97.62	100.00	0	yes
SK	49024	52.50	47.13	100.00	100.00	0	yes
TR	780122	17.40	28.25	98.68	100.00	0	yes
UK	244714	80.26	58.21	92.15	≈100.00	13200	no
ALL	5836765	44.01	32.25	96.77	≈100.00	84300.0	no

[a] Normalised country codes, all 38 participating countries (CS for RS ∪ ME).
[b] Area of country calculated from Gisco version 9 NUTS vector file rasterised at 250m using ETRS-89 LAEA projection and the European grid and within window displayed in Fig. 1.

Table 8: Combined coverage statistics based on country regions of interest. The code CS refers to the former union of Serbia (RS) and Montenegro (ME).

Code[a]	area[b] (km^2)	% with SP4	% with SP5	% with IL3	% with ALL	# miss- ing pixels	Full cover- age?
AL	28534	84.82	29.71	99.84	100.00	0	yes
AT	83930	80.91	39.02	100.00	100.00	0	yes
BA	51274	31.43	57.89	100.00	100.00	0	yes
BE	30664	49.77	69.08	100.00	100.00	0	yes
BG	110796	64.94	43.06	100.00	100.00	0	yes
CH	41288	69.58	40.76	100.00	100.00	0	yes
CS	102572	63.57	39.42	100.00	100.00	0	yes
CY	9247	0.00	8.39	100.00	100.00	0	yes
CZ	78866	54.67	37.51	99.88	100.00	0	yes
DE	357672	45.34	44.01	100.00	100.00	0	yes
DK	43360	80.59	60.67	99.43	100.00	0	yes
EE	45327	44.70	22.81	100.00	100.00	0	yes
ES	505984	13.75	21.59	98.07	100.00	0	yes
FI	337801	39.15	9.11	100.00	100.00	0	yes
FR	549167	44.47	26.59	98.84	100.00	0	yes
GR	132025	62.45	44.91	98.69	100.00	0	yes
HR	56631	26.93	58.39	100.00	100.00	0	yes
HU	93016	60.19	53.82	98.71	100.00	0	yes
IE	70175	80.47	49.00	100.00	100.00	0	yes
IS	102906	94.31	45.07	0.00	≈100.00	200	no
IT	301429	40.60	46.86	99.91	100.00	0	yes
LI	160	100.00	0.00	100.00	100.00	0	yes
LT	64892	70.15	55.67	100.00	100.00	0	yes

Code[a]	area[b] (km^2)	% with SP4	% with SP5	% with IL3	% with ALL	# missing pixels	Full coverage?
LU	2595	100.00	77.78	100.00	100.00	0	yes
LV	64603	69.14	14.83	100.00	100.00	0	yes
MK	25153	71.89	17.76	100.00	100.00	0	yes
MT	314	0.00	100.00	100.00	100.00	0	yes
NL	37357	83.64	76.53	100.00	100.00	0	yes
NO	323457	80.50	25.92	98.58	100.00	0	yes
PL	311894	49.42	10.56	100.00	100.00	0	yes
PT	92140	39.91	14.99	96.62	99.95	68500	no
RO	237938	59.52	42.84	99.61	100.00	0	yes
SE	449446	40.58	45.35	99.18	≈100.00	2200	no
SI	20272	88.75	41.65	100.00	100.00	0	yes
SK	49024	66.69	56.05	100.00	100.00	0	yes
TR	780122	18.06	28.53	98.68	100.00	0	yes
UK	244714	80.26	58.21	92.16	≈100.00	13200	no
ALL	5836765	46.79	34.10	97.18	≈100.00	84300.0	no

[a] Normalised country codes, all 38 participating countries (CS for RS ∪ ME).
[b] Area of country calculated from Gisco version 9 NUTS vector file rasterised at 250m using ETRS-89 LAEA projection and the European grid and within window displayed in Fig. 1.

References

[1] R. Müller, T. Krauß, M. Lehner, G. Rönnbäck, and Å Karlsson. Image2006 GMES Fast track land service 2006–2008: Orthorectificatioon of SPOT and IRS-P6 products. Technical report, DLR and Metria, May 2008.

[2] P. Soille, C. Bielski, and J. Nowak. Image-2006 mosaic: Analysis of image footprints —v.1.0—. Technical report, European Commission, DG Joint Research Centre, May 2008.

A Comprehensive footprint coverage statistics

This appendix presents footprint statistics for all countries for which image is available. Tables are given for data and country based regions of interest and for coverages 1 (tables 9 and 10), coverage 2 (tables 11 and 12), as well as for the combined coverages (tables 13 and 14).

Table 9: First coverage statistics based on data region of interest `DRXX`. The code CS refers to the former union of Serbia (RS) and Montenegro (ME). Country codes of participating countries are typeset in bold.

Code[a]	area[b] (km^2)	% with SP4	% with SP5	% with IL3	% with ALL	# missing pixels	Full coverage?
AD	465	0.00	0.00	100.00	100.00	0	yes
AL	28534	74.77	12.18	99.82	100.00	0	yes
AM	12130	0.12	3.26	39.64	41.19	27708600	no
AT	83930	51.47	27.66	92.59	100.00	0	yes
AZ	500	0.00	1.05	0.02	1.05	75777000	no
BA	51274	18.62	34.74	100.00	100.00	0	yes
BE	30664	28.15	63.79	100.00	≈100.00	100	no
BG	110796	61.25	27.10	100.00	100.00	0	yes
BY	30746	5.14	1.02	13.21	14.84	282372400	no
CH	41288	60.49	40.74	98.91	100.00	0	yes
CS	102572	45.29	31.28	93.25	100.00	0	yes
CY	9247	0.00	8.39	100.00	100.00	0	yes
CZ	78866	41.41	30.10	92.97	100.00	0	yes
DE	357672	34.76	39.99	96.88	100.00	0	yes
DK	43360	63.33	55.94	71.45	≈100.00	200	no
EE	45327	44.70	14.81	86.22	100.00	0	yes
ES	505984	6.96	12.01	95.28	100.00	0	yes
FI	337788	30.09	6.69	97.07	≈100.00	20700	no
FR	549164	39.99	23.65	92.24	≈100.00	3700	no
GE	21090	0.00	0.00	30.30	30.30	77610700	no
GG	8	10.08	0.00	0.00	10.08	118600	no
GI	5	0.00	0.00	100.00	100.00	0	yes
GR	132025	59.90	34.51	87.91	≈100.00	1300	no
HR	56631	18.22	32.96	99.62	≈100.00	500	no
HU	93016	49.89	50.51	86.91	100.00	0	yes
IE	70175	49.98	32.24	98.39	100.00	0	yes
IM	580	2.88	0.00	100.00	100.00	0	yes
IQ	6601	1.53	1.47	0.55	3.03	337589600	no
IR	10328	6.07	20.40	3.31	24.54	50806800	no
IS	102906	94.31	45.07	0.00	≈100.00	200	no
IT	301429	15.52	29.21	93.00	≈100.00	500	no
JE	123	23.56	0.00	100.00	100.00	0	yes
LI	160	100.00	0.00	100.00	100.00	0	yes
LT	64890	49.75	52.75	73.59	≈100.00	3600	no
LU	2595	37.15	77.78	100.00	100.00	0	yes
LV	64603	64.40	14.08	89.47	100.00	0	yes
MA	3734	0.02	0.00	1.03	1.03	576090200	no

Code[a]	area[b] (km^2)	% with SP4	% with SP5	% with IL3	% with ALL	# missing pixels	Full coverage?
MC	1	0.00	100.00	100.00	100.00	0	yes
MD	14423	0.52	2.54	40.18	42.60	31092900	no
MK	25153	55.58	0.88	100.00	100.00	0	yes
MT	314	0.00	0.00	100.00	100.00	0	yes
NL	37357	48.61	59.24	98.98	100.00	0	yes
NO	323456	41.05	6.59	98.47	≈100.00	100	no
PL	311894	42.47	8.68	98.14	100.00	0	yes
PT	92140	5.33	3.42	96.23	99.95	68500	no
RO	237938	32.49	32.87	93.42	100.00	0	yes
RU	112968	0.49	0.13	2.37	2.62	6731000100	no
SE	449446	29.95	40.04	87.02	≈100.00	2200	no
SI	20272	56.64	12.24	100.00	100.00	0	yes
SK	49024	64.86	34.42	96.31	100.00	0	yes
SM	61	0.00	0.00	100.00	100.00	0	yes
SY	35797	0.47	0.09	18.70	19.01	243984000	no
TR	780122	11.61	21.66	98.18	100.00	0	yes
UA	59237	0.76	0.26	9.85	9.86	866865400	no
UK	244706	55.11	17.83	83.86	99.99	26000	no
VA	0	0.00	0.00	100.00	100.00	0	yes

[a] Normalised country codes, all 38 participating countries are typeset in bold.

[b] Area of country calculated from Gisco version 9 NUTS vector file rasterised at 250m using ETRS-89 LAEA projection and the European grid and within window displayed in Fig. 1.

Table 10: First coverage statistics based on country region of interest `CRXX`. The code CS refers to the former union of Serbia (RS) and Montenegro (ME). Country codes of participating countries are typeset in bold.

Code[a]	area[b] (km^2)	% with SP4	% with SP5	% with IL3	% with ALL	# missing pixels	Full coverage?
AD	465	0.00	0.00	100.00	100.00	0	yes
AL	28534	74.77	12.18	99.82	100.00	0	yes
AM	12130	0.12	3.26	39.64	41.19	27708600	no
AT	83930	51.47	27.66	92.59	100.00	0	yes
AZ	500	0.00	1.05	0.02	1.05	75777000	no
BA	51274	18.62	34.74	100.00	100.00	0	yes
BE	30664	28.15	63.79	100.00	≈100.00	100	no
BG	110796	61.25	27.10	100.00	100.00	0	yes
BY	30746	5.14	1.02	13.21	14.84	282372400	no
CH	41288	60.49	40.74	98.91	100.00	0	yes
CS	102572	45.29	31.28	93.25	100.00	0	yes
CY	9247	0.00	8.39	100.00	100.00	0	yes
CZ	78866	41.41	30.10	92.97	100.00	0	yes
DE	357672	34.76	39.99	96.88	100.00	0	yes
DK	43360	63.33	55.94	71.45	≈100.00	200	no
EE	45327	44.70	14.81	86.22	100.00	0	yes
ES	505984	6.96	12.01	95.28	100.00	0	yes
FI	337788	30.09	6.69	97.07	≈100.00	20700	no
FR	549164	39.99	23.65	92.24	≈100.00	3700	no
GE	21090	0.00	0.00	30.30	30.30	77610700	no
GG	8	10.08	0.00	0.00	10.08	118600	no
GI	5	0.00	0.00	100.00	100.00	0	yes
GR	132025	59.90	34.51	87.91	≈100.00	1300	no
HR	56631	18.22	32.96	99.62	≈100.00	500	no
HU	93016	49.89	50.51	86.91	100.00	0	yes
IE	70175	49.98	32.24	98.39	100.00	0	yes
IM	580	2.88	0.00	100.00	100.00	0	yes
IQ	6601	1.53	1.47	0.55	3.03	337589600	no
IR	10328	6.07	20.40	3.31	24.54	50806800	no
IS	102906	94.31	45.07	0.00	≈100.00	200	no
IT	301429	15.52	29.21	93.00	≈100.00	500	no
JE	123	23.56	0.00	100.00	100.00	0	yes
LI	160	100.00	0.00	100.00	100.00	0	yes
LT	64890	49.75	52.75	73.59	≈100.00	3600	no
LU	2595	37.15	77.78	100.00	100.00	0	yes
LV	64603	64.40	14.08	89.47	100.00	0	yes
MA	3734	0.02	0.00	1.03	1.03	576090200	no
MC	1	0.00	100.00	100.00	100.00	0	yes
MD	14423	0.52	2.54	40.18	42.60	31092900	no
MK	25153	55.58	0.88	100.00	100.00	0	yes
MT	314	0.00	0.00	100.00	100.00	0	yes
NL	37357	48.61	59.24	98.98	100.00	0	yes
NO	323456	41.05	6.59	98.47	≈100.00	100	no
PL	311894	42.47	8.68	98.14	100.00	0	yes

Code[a]	area[b] (km^2)	% with SP4	% with SP5	% with IL3	% with ALL	# missing pixels	Full coverage?
PT	92140	5.33	3.42	96.23	99.95	68500	no
RO	237938	32.49	32.87	93.42	100.00	0	yes
RU	112968	0.49	0.13	2.37	2.62	6731000100	no
SE	449446	29.95	40.04	87.02	≈100.00	2200	no
SI	20272	56.64	12.24	100.00	100.00	0	yes
SK	49024	64.86	34.42	96.31	100.00	0	yes
SM	61	0.00	0.00	100.00	100.00	0	yes
SY	35797	0.47	0.09	18.70	19.01	243984000	no
TR	780122	11.61	21.66	98.18	100.00	0	yes
UA	59237	0.76	0.26	9.85	9.86	866865400	no
UK	244706	55.11	17.83	83.86	99.99	26000	no
VA	0	0.00	0.00	100.00	100.00	0	yes

[a] Normalised country codes, all 38 participating countries are typeset in bold.

[b] Area of country calculated from Gisco version 9 NUTS vector file rasterised at 250m using ETRS-89 LAEA projection and the European grid and within window displayed in Fig. 1.

Table 11: Second coverage statistics based on data region of interest `DRXX`. The code CS refers to the former union of Serbia (RS) and Montenegro (ME). Country codes of participating countries are typeset in bold.

Code[a]	area[b] (km^2)	% with SP4	% with SP5	% with IL3	% with ALL	# missing pixels	Full coverage?
AD	465	0.00	1.65	100.00	100.00	0	yes
AL	28534	26.83	23.91	96.93	100.00	0	yes
AM	5176	0.00	17.58	2.11	17.58	38834900	no
AT	83930	44.10	15.46	100.00	100.00	0	yes
AZ	822	0.00	1.72	0.00	1.72	75261300	no
BA	51274	12.95	34.82	98.82	100.00	0	yes
BE	30664	34.68	39.37	99.12	100.00	0	yes
BG	110796	17.42	20.19	97.24	100.00	0	yes
BY	50196	0.63	0.24	24.22	24.22	251252400	no
CH	41288	45.90	6.85	99.99	100.00	0	yes
CS	102572	40.95	12.13	98.50	100.00	0	yes
CY	9247	0.00	0.00	100.00	100.00	0	yes
CZ	78866	22.69	12.76	99.83	100.00	0	yes
DE	357672	15.25	7.86	99.65	100.00	0	yes
DK	43360	38.20	13.77	99.43	100.00	0	yes
EE	45327	0.00	8.00	100.00	100.00	0	yes
ES	505984	7.66	11.98	98.07	100.00	0	yes
FI	329895	23.49	3.66	90.49	97.66	12649900	no
FR	549167	11.77	6.25	97.81	100.00	0	yes
GE	6083	7.16	1.92	0.00	8.74	101622700	no
GI	5	0.00	0.00	100.00	100.00	0	yes
GR	132025	15.65	22.83	97.04	≈100.00	100	no
HR	56631	10.58	29.71	98.09	100.00	0	yes
HU	93016	26.95	3.70	97.06	100.00	0	yes
IE	70175	70.51	24.09	72.15	100.00	0	yes
IM	111	0.00	19.27	0.00	19.27	750400	no
IQ	9718	3.86	1.25	0.09	4.47	332601700	no
IR	10939	8.00	18.55	2.26	26.00	49828800	no
IT	301429	31.11	27.80	92.84	100.00	0	yes
JE	123	0.00	0.00	100.00	100.00	0	yes
LI	160	100.00	0.00	100.00	100.00	0	yes
LT	64892	44.22	16.49	100.00	100.00	0	yes
LU	2595	100.00	0.00	97.55	100.00	0	yes
LV	64603	13.99	4.27	99.96	100.00	0	yes
MA	7415	0.00	0.00	2.04	2.04	570200800	no
MC	1	0.00	0.00	100.00	100.00	0	yes
MD	20709	4.08	0.00	60.13	61.17	21036000	no
MK	25153	38.80	17.50	99.92	100.00	0	yes
MT	314	0.00	100.00	0.00	100.00	0	yes
NL	37357	69.17	39.92	72.21	100.00	0	yes
NO	274961	71.48	22.15	20.59	85.01	77592300	no
PL	311894	12.46	4.36	98.11	100.00	0	yes
PT	91223	36.15	11.80	89.30	98.96	1535000	no
RO	237938	37.98	12.73	87.44	100.00	0	yes

Code[a]	area[b] (km^2)	% with SP4	% with SP5	% with IL3	% with ALL	# missing pixels	Full coverage?
RU	118490	0.26	0.01	2.67	2.74	6722164800	no
SE	402998	15.87	13.36	78.71	89.67	74319400	no
SI	20272	44.60	33.99	96.61	100.00	0	yes
SK	49024	18.50	24.78	98.99	100.00	0	yes
SM	61	30.59	100.00	0.00	100.00	0	yes
SY	37994	1.76	0.47	18.56	20.18	240470000	no
TR	780122	9.20	9.56	93.68	100.00	0	yes
UA	44414	1.08	0.71	6.60	7.39	890581200	no
UK	244699	56.37	50.08	59.50	99.99	36100	no
VA	0	0.00	0.00	100.00	100.00	0	yes

[a] Normalised country codes, all 38 participating countries are typeset in bold.
[b] Area of country calculated from Gisco version 9 NUTS vector file rasterised at 250m using ETRS-89 LAEA projection and the European grid and within window displayed in Fig. 1.

Table 12: Second coverage statistics based on country region of interest `CRXX`. The code CS refers to the former union of Serbia (RS) and Montenegro (ME). Country codes of participating countries are typeset in bold.

Code[a]	area[b] (km^2)	% with SP4	% with SP5	% with IL3	% with ALL	# missing pixels	Full coverage?
AD	465	0.00	1.49	100.00	100.00	0	yes
AL	28534	10.89	12.82	96.93	100.00	0	yes
AM	5176	0.00	17.58	2.11	17.58	38834900	no
AT	83930	37.44	15.42	100.00	100.00	0	yes
AZ	822	0.00	1.72	0.00	1.72	75261300	no
BA	51274	12.95	29.79	88.14	100.00	0	yes
BE	30664	29.73	26.99	80.86	100.00	0	yes
BG	110796	14.14	19.41	94.52	100.00	0	yes
BY	50196	0.63	0.24	24.22	24.22	251252400	no
CH	41288	41.81	1.64	96.91	100.00	0	yes
CS	102572	32.54	9.55	97.64	100.00	0	yes
CY	9247	0.00	0.00	100.00	100.00	0	yes
CZ	78866	22.69	12.14	98.25	100.00	0	yes
DE	357672	12.65	6.99	99.63	100.00	0	yes
DK	43360	38.20	13.77	94.07	100.00	0	yes
EE	45327	0.00	8.00	100.00	100.00	0	yes
ES	505984	6.58	12.07	98.07	100.00	0	yes
FI	329717	22.65	2.64	90.43	97.61	12933500	no
FR	549165	10.52	5.88	97.79	≈100.00	1900	no
GE	6083	7.16	1.92	0.00	8.74	101622700	no
GI	5	0.00	0.00	100.00	100.00	0	yes
GR	132025	13.29	22.10	97.04	≈100.00	100	no
HR	56631	8.14	16.19	95.97	100.00	0	yes
HU	93016	22.58	2.99	94.85	100.00	0	yes
IE	70175	63.34	19.25	72.15	100.00	0	yes
IM	111	0.00	19.27	0.00	19.27	750400	no
IQ	9718	3.86	1.25	0.09	4.47	332601700	no
IR	10939	8.00	18.55	2.26	26.00	49828800	no
IT	301429	30.73	27.74	92.59	100.00	0	yes
JE	123	0.00	0.00	100.00	100.00	0	yes
LI	160	100.00	0.00	100.00	100.00	0	yes
LT	64892	41.83	12.16	97.94	100.00	0	yes
LU	2595	100.00	0.00	35.81	100.00	0	yes
LV	64603	9.30	3.69	99.89	100.00	0	yes
MA	7415	0.00	0.00	2.04	2.04	570200800	no
MC	1	0.00	0.00	100.00	100.00	0	yes
MD	20709	4.08	0.00	60.13	61.17	21036000	no
MK	25153	19.09	8.34	99.76	100.00	0	yes
MT	314	0.00	100.00	0.00	100.00	0	yes
NL	37357	69.17	33.78	45.01	100.00	0	yes
NO	260664	69.63	22.15	17.27	80.59	100468000	no
PL	311894	11.37	3.69	97.15	100.00	0	yes
PT	91223	36.15	11.80	88.82	98.96	1535000	no
RO	237938	36.85	12.43	85.11	100.00	0	yes

Code[a]	area[b] (km^2)	% with SP4	% with SP5	% with IL3	% with ALL	# missing pixels	Full coverage?
RU	118489	0.26	0.01	2.67	2.74	6722167200	no
SE	393877	13.93	10.07	78.47	87.64	88913800	no
SI	20272	41.51	32.86	75.30	100.00	0	yes
SK	49024	12.08	16.68	98.91	100.00	0	yes
SM	61	30.59	100.00	0.00	100.00	0	yes
SY	37994	1.76	0.47	18.56	20.18	240470000	no
TR	780122	8.97	9.56	93.50	100.00	0	yes
UA	44414	1.08	0.71	6.60	7.39	890581200	no
UK	244699	56.37	50.08	58.01	99.99	36100	no
VA	0	0.00	0.00	100.00	100.00	0	yes

[a] Normalised country codes, all 38 participating countries are typeset in bold.
[b] Area of country calculated from Gisco version 9 NUTS vector file rasterised at 250m using ETRS-89 LAEA projection and the European grid and within window displayed in Fig. 1.

Table 13: Second coverage statistics based on data region of interest `DRXX`. The code CS refers to the former union of Serbia (RS) and Montenegro (ME). Country codes of participating countries are typeset in bold.

Code[a]	area[b] (km^2)	% with SP4	% with SP5	% with IL3	% with ALL	# missing pixels	Full coverage?
AD	465	0.00	1.65	100.00	100.00	0	yes
AL	28534	84.82	29.71	99.84	100.00	0	yes
AM	12265	0.12	17.58	39.64	41.65	27491500	no
AT	83930	80.91	39.02	100.00	100.00	0	yes
AZ	822	0.00	1.72	0.02	1.72	75261300	no
BA	51274	31.43	57.89	100.00	100.00	0	yes
BE	30664	49.77	69.08	100.00	100.00	0	yes
BG	110796	64.94	43.06	100.00	100.00	0	yes
BY	50388	5.16	1.02	24.22	24.32	250946400	no
CH	41288	69.58	40.76	100.00	100.00	0	yes
CS	102572	63.57	39.42	100.00	100.00	0	yes
CY	9247	0.00	8.39	100.00	100.00	0	yes
CZ	78866	54.67	37.51	99.88	100.00	0	yes
DE	357672	45.34	44.01	100.00	100.00	0	yes
DK	43360	80.59	60.67	99.43	100.00	0	yes
EE	45327	44.70	22.81	100.00	100.00	0	yes
ES	505984	13.75	21.59	98.07	100.00	0	yes
FI	337801	39.15	9.11	100.00	100.00	0	yes
FR	549167	44.47	26.59	98.84	100.00	0	yes
GE	21090	7.16	1.92	30.30	30.30	77610700	no
GG	8	10.08	0.00	0.00	10.08	118600	no
GI	5	0.00	0.00	100.00	100.00	0	yes
GR	132025	62.45	44.91	98.69	100.00	0	yes
HR	56631	26.93	58.39	100.00	100.00	0	yes
HU	93016	60.19	53.82	98.71	100.00	0	yes
IE	70175	80.47	49.00	100.00	100.00	0	yes
IM	580	2.88	19.27	100.00	100.00	0	yes
IQ	10401	4.00	2.30	0.58	4.78	331509100	no
IR	12721	13.70	24.75	3.31	30.23	46977800	no
IS	102906	94.31	45.07	0.00	≈100.00	200	no
IT	301429	40.60	46.86	99.91	100.00	0	yes
JE	123	23.56	0.00	100.00	100.00	0	yes
LI	160	100.00	0.00	100.00	100.00	0	yes
LT	64892	70.15	55.67	100.00	100.00	0	yes
LU	2595	100.00	77.78	100.00	100.00	0	yes
LV	64603	69.14	14.83	100.00	100.00	0	yes
MA	7470	0.02	0.00	2.05	2.05	570112700	no
MC	1	0.00	100.00	100.00	100.00	0	yes
MD	21043	4.60	2.54	62.15	62.15	20501000	no
MK	25153	71.89	17.76	100.00	100.00	0	yes
MT	314	0.00	100.00	100.00	100.00	0	yes
NL	37357	83.64	76.53	100.00	100.00	0	yes
NO	323457	80.50	25.92	98.58	100.00	0	yes
PL	311894	49.42	10.56	100.00	100.00	0	yes

Code[a]	area[b] (km^2)	% with SP4	% with SP5	% with IL3	% with ALL	# missing pixels	Full coverage?
PT	92140	39.91	14.99	96.62	99.95	68500	no
RO	237938	59.52	42.84	99.61	100.00	0	yes
RU	143823	0.63	0.13	3.33	3.33	6681632500	no
SE	449446	40.58	45.35	99.18	≈100.00	2200	no
SI	20272	88.75	41.65	100.00	100.00	0	yes
SK	49024	66.69	56.05	100.00	100.00	0	yes
SM	61	30.59	100.00	100.00	100.00	0	yes
SY	40134	2.23	0.56	20.48	21.32	237044900	no
TR	780122	18.06	28.53	98.68	100.00	0	yes
UA	62545	1.64	0.92	10.23	10.41	861572300	no
UK	244714	80.26	58.21	92.16	≈100.00	13200	no
VA	0	0.00	0.00	100.00	100.00	0	yes

[a] Normalised country codes, all 38 participating countries are typeset in bold.

[b] Area of country calculated from Gisco version 9 NUTS vector file rasterised at 250m using ETRS-89 LAEA projection and the European grid and within window displayed in Fig. 1.

Table 14: Second coverage statistics based on country region of interest `CRXX`. The code CS refers to the former union of Serbia (RS) and Montenegro (ME). Country codes of participating countries are typeset in bold.

Code[a]	area[b] (km^2)	% with SP4	% with SP5	% with IL3	% with ALL	# missing pixels	Full coverage?
AD	465	0.00	1.49	100.00	100.00	0	yes
AL	28534	68.42	17.32	99.84	100.00	0	yes
AM	12265	0.12	17.58	39.64	41.65	27491500	no
AT	83930	64.68	28.37	100.00	100.00	0	yes
AZ	822	0.00	1.72	0.02	1.72	75261300	no
BA	51274	24.59	43.98	100.00	100.00	0	yes
BE	30664	39.19	59.02	100.00	100.00	0	yes
BG	110796	60.06	42.92	97.86	100.00	0	yes
BY	50388	5.15	1.02	24.22	24.32	250946400	no
CH	41288	60.32	36.86	100.00	100.00	0	yes
CS	102572	58.42	32.73	100.00	100.00	0	yes
CY	9247	0.00	8.39	100.00	100.00	0	yes
CZ	78866	44.83	36.70	99.73	100.00	0	yes
DE	357672	40.59	40.83	100.00	100.00	0	yes
DK	43360	80.47	60.67	97.53	100.00	0	yes
EE	45327	44.67	22.81	100.00	100.00	0	yes
ES	505984	12.37	20.48	98.07	100.00	0	yes
FI	337801	37.61	8.06	100.00	100.00	0	yes
FR	549167	43.85	26.23	98.82	100.00	0	yes
GE	21090	7.16	1.92	30.30	30.30	77610700	no
GG	8	10.08	0.00	0.00	10.08	118600	no
GI	5	0.00	0.00	100.00	100.00	0	yes
GR	132025	61.13	41.59	98.04	100.00	0	yes
HR	56631	16.35	38.86	100.00	100.00	0	yes
HU	93016	54.28	49.91	97.98	100.00	0	yes
IE	70175	74.12	47.94	100.00	100.00	0	yes
IM	580	2.88	19.27	100.00	100.00	0	yes
IQ	10401	4.00	2.30	0.58	4.78	331509100	no
IR	12721	13.70	24.75	3.31	30.23	46977800	no
IS	102906	94.31	45.07	0.00	≈100.00	200	no
IT	301429	39.46	45.79	99.89	100.00	0	yes
JE	123	23.56	0.00	100.00	100.00	0	yes
LI	160	100.00	0.00	100.00	100.00	0	yes
LT	64892	61.17	55.37	98.01	100.00	0	yes
LU	2595	100.00	77.74	44.40	100.00	0	yes
LV	64603	65.66	13.14	100.00	100.00	0	yes
MA	7470	0.02	0.00	2.05	2.05	570112700	no
MC	1	0.00	100.00	100.00	100.00	0	yes
MD	21043	4.60	2.54	62.15	62.15	20501000	no
MK	25153	32.99	8.34	100.00	100.00	0	yes
MT	314	0.00	100.00	100.00	100.00	0	yes
NL	37357	82.22	76.52	98.81	100.00	0	yes
NO	323457	77.84	24.41	98.58	100.00	0	yes
PL	311894	46.56	9.80	99.21	100.00	0	yes

Code[a]	area[b] (km^2)	% with SP4	% with SP5	% with IL3	% with ALL	# missing pixels	Full coverage?
PT	92140	38.55	14.99	96.14	99.95	68500	no
RO	237938	56.74	40.32	99.03	100.00	0	yes
RU	143823	0.63	0.13	3.33	3.33	6681632500	no
SE	449446	39.66	43.79	96.71	$\approx$100.00	2200	no
SI	20272	82.40	41.18	97.62	100.00	0	yes
SK	49024	52.50	47.13	100.00	100.00	0	yes
SM	61	30.59	100.00	100.00	100.00	0	yes
SY	40134	2.23	0.56	20.48	21.32	237044900	no
TR	780122	17.40	28.25	98.68	100.00	0	yes
UA	62545	1.64	0.92	10.23	10.41	861572300	no
UK	244714	80.26	58.21	92.15	$\approx$100.00	13200	no
VA	0	0.00	0.00	100.00	100.00	0	yes

[a] Normalised country codes, all 38 participating countries are typeset in bold.
[b] Area of country calculated from Gisco version 9 NUTS vector file rasterised at 250m using ETRS-89 LAEA projection and the European grid and within window displayed in Fig. 1.

Abstract:
This technical note presents a brief analysis of the footprints of the IMAGE-2006 imagery to be mosaiced. The first coverage (2080 images) is nearly covering the full target territory (some small gaps, the largest one being the Porto Santo Island, Madeira, Portugal). The second coverage (1619 images) accounts for 96.5% of the territory with Iceland and all Atlantic Islands missing plus a series of large gaps mainly in Scandinavia. Note that imagery was delivered as a union of country coverages rather than a truly European coverage. Consequently, some images overlapping two or more countries were delivered more than once. In addition, these duplicated images are not always exactly identical. Statistics are given for both full data footprints and data footprints reduced to the territory of the country for which the image was delivered.

The mission of the JRC is to provide customer-driven scientific and technical support for the conception, development, implementation and monitoring of EU policies. As a service of the European Commission, the JRC functions as a reference centre of science and technology for the Union. Close to the policy-making process, it serves the common interest of the Member States, while being independent of special interests, whether private or national.

JRC
EUROPEAN COMMISSION

Publications Office