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Project Ukko

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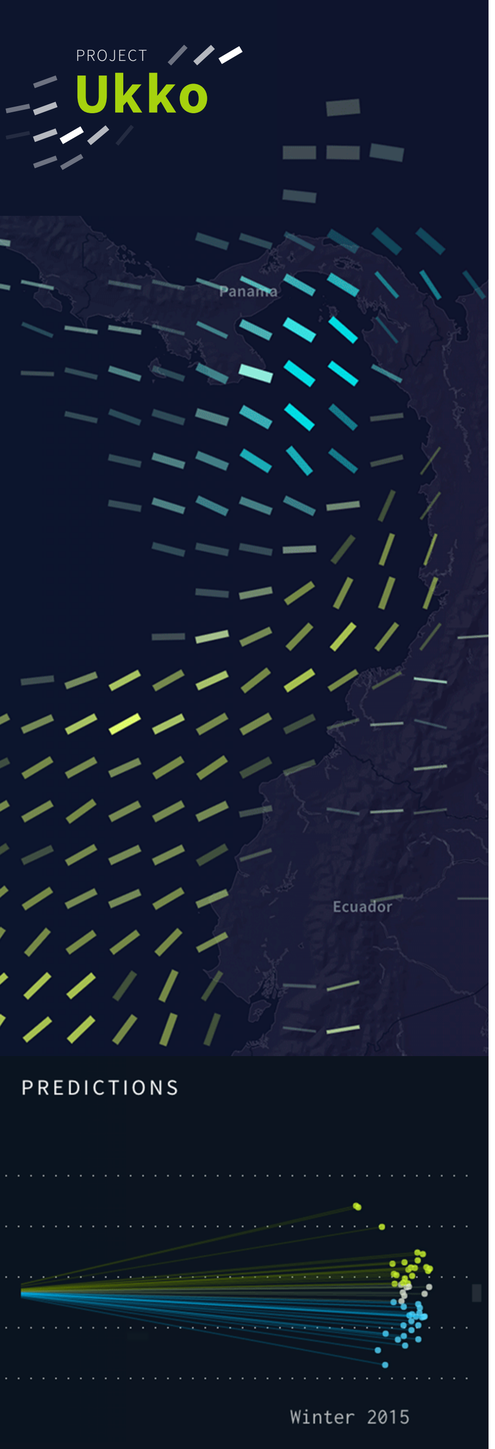


Project Ukko presents a novel way to spot patterns in seasonal wind prediction data. Understanding future wind conditions can become a crucial component block in supporting clean energy sources and climate change resilience. Our visualization allows energy traders, wind farm managers and others to spot global patterns and trends in future wind conditions, and drill into detailed prediction breakdowns on a regional level.

Based on a high-dimensional dataset of over 100’000 points world-wide, with 51 predictions each, and 20 years of historical data, the Project Ukko web application presents an information-rich, yet highly digestible map display. The map draws attention to the crucial spots in the data: where in the world can we expect strong changes in wind speeds in the coming seasons?

A tailored visual device (*probability cone*) presents a novel visual model to communicate distributions of probabilistic prediction values, and informed the development of a coherent visual language for the whole project.

The visualization was developed in an interdisciplinary team of experts in climatology, communication and data visualization design in the context of EUPORIAS, a project funded by the EC to increase the resilience of the European society to climate change.

WEBSITE
http://www.project-ukko.net/

SUMMARY VIDEO
https://vimeo.com/futureeverything/ukko

CONTACT
info@project-ukko.net

DOCUMENTATION AND COVERAGE
http://truth-and-beauty.net/projects/ukko
http://futureeverything.org/projects/ukko/

Visual loop: "Seasonal wind prediction with Project Ukko"
Flowing Data: "Wind prediction and potential power"
Scientific American: "The Data, My Friend, Is Blowing in the Wind"
WIRED: "Project Ukko Is a Clever Way to Visualize the Complexities of Wind"

PROJECT
Ukko

Project Ukko is a Future Everything and BSC project for EUPORIAS.
Data visualisation by Moritz Stefaner.
Project Ukko director Drew Hemment.

Moritz Stefaner works as a “truth and beauty operator” on the crossroads of data visualization, information aesthetics and user interface design. With a background in Cognitive Science and Interface Design, his work beautifully balances analytical and aesthetic aspects in mapping abstract and complex phenomena.

In the past, he has helped clients like the OECD, the World Economic Forum, Skype, dpa, FIFA, and Max Planck Research Society to find insights and beauty in large data sets. He was nominated for the Design Award of the Federal Republic of Germany and is a multiple winner of the Kantar Information is Beautiful awards. His work has been exhibited at Venice Biennale of Architecture, SIGGRAPH, Ars Electronica and the Max Planck Science Gallery. He has co-authored books for publishers like O’Reilly and Springer and has spoken and lectured on numerous occasions on the topic of information visualization.

Find his personal portfolio at http://truth-and-beauty.net.
He also publishes the Data Stories podcast together with Enrico Bertini.

PROJECT
Ukko
2.1.0

SETTINGS

Nicaragua
Costa Rica
Panama
Colombia
Ecuador
Aruba (Nld.)
Curaçao (Nld.)

LEGEND

SKILL
High
Low

PREDICTED STRENGTH
High
Low

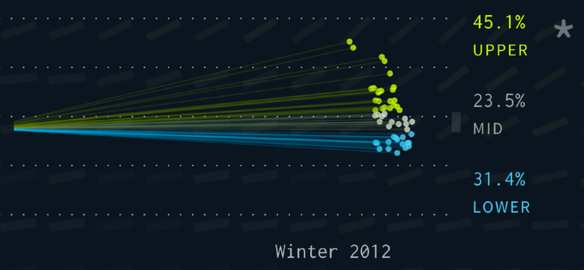
PREDICTED CHANGE
Increase
Decrease

INSTALLED WIND POWER
High
Low

OBSERVATIONS

Seasonal average wind speeds in m/s

PREDICTIONS

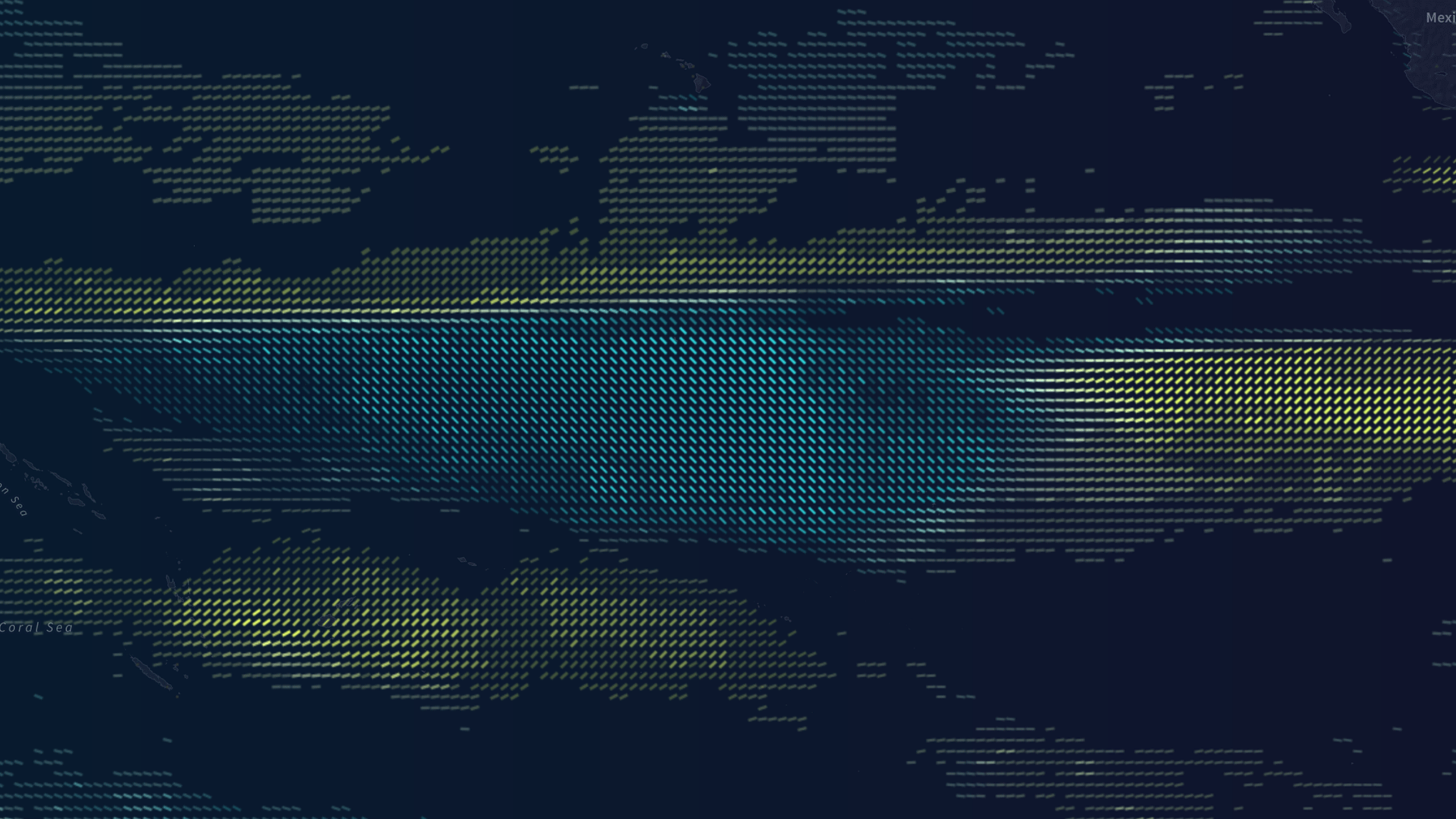


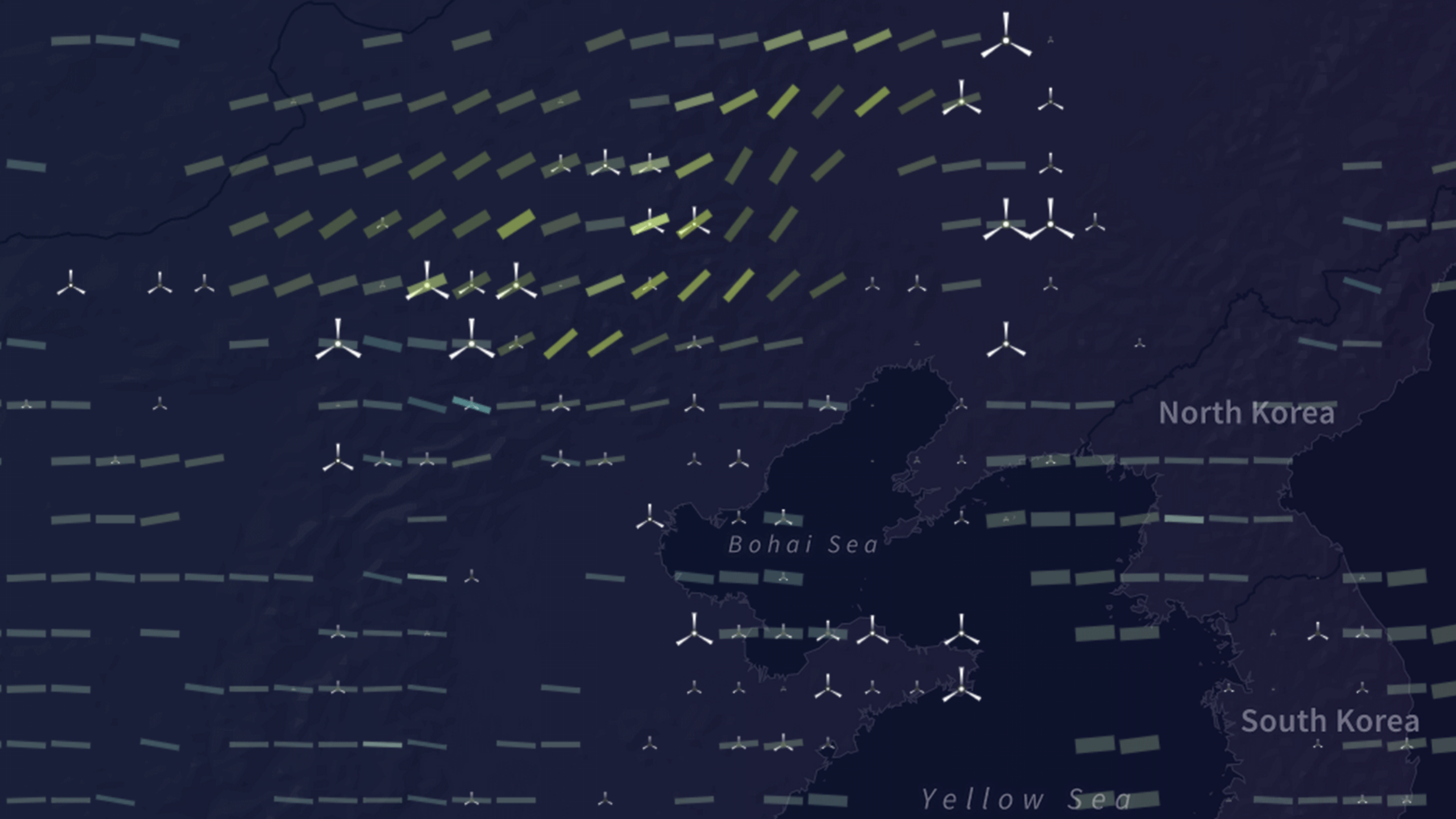
SKILL

16.0%

INSTALLED WIND POWER

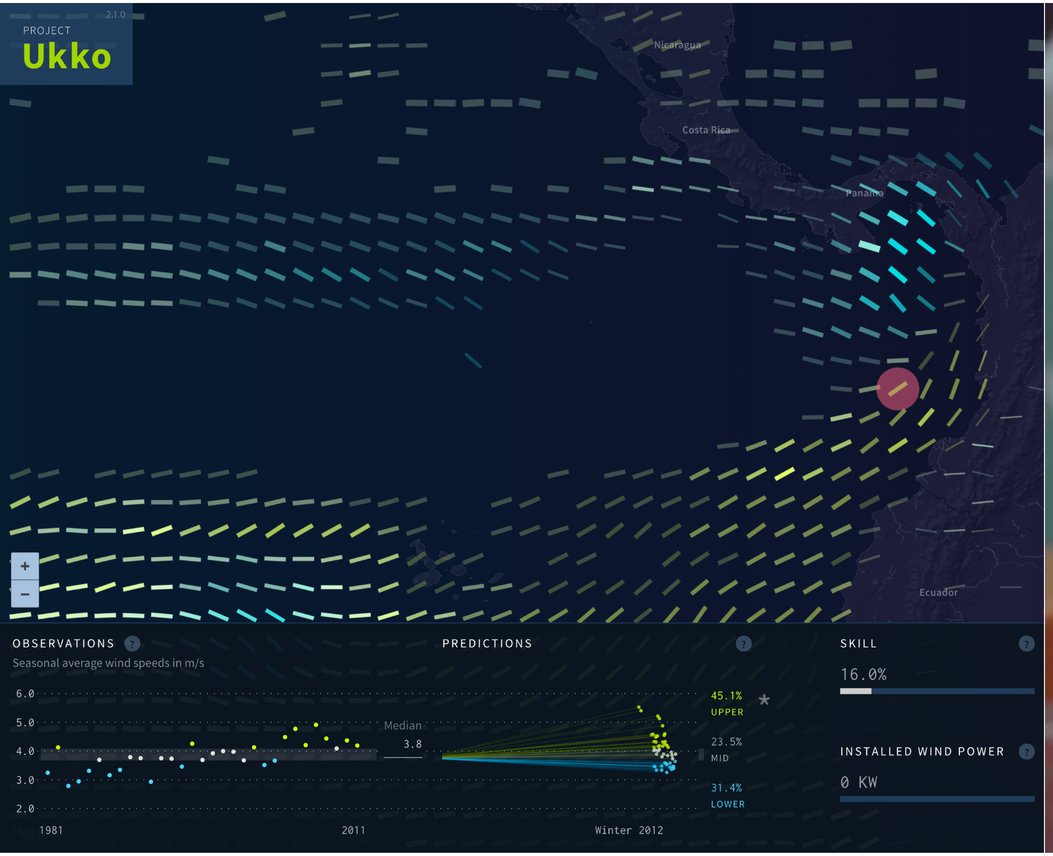
0 KW


Coral Sea


North Korea
Bohai Sea
South Korea
Yellow Sea

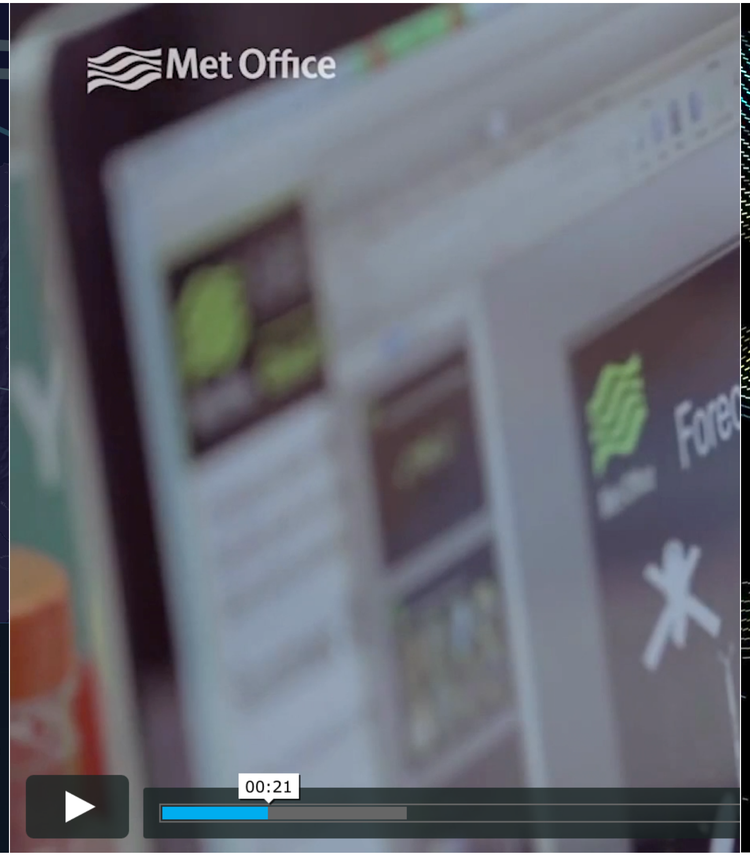
Cambodia
Andaman Sea
Gulf of Thailand
Sri Lanka
South China Sea
Sulu Sea
Celebes Sea
Malaysia
Indonesia
Ceram Sea
Java Sea
Banda Sea
Flores Sea
Savu Sea
Timor Sea

Potential exhibits



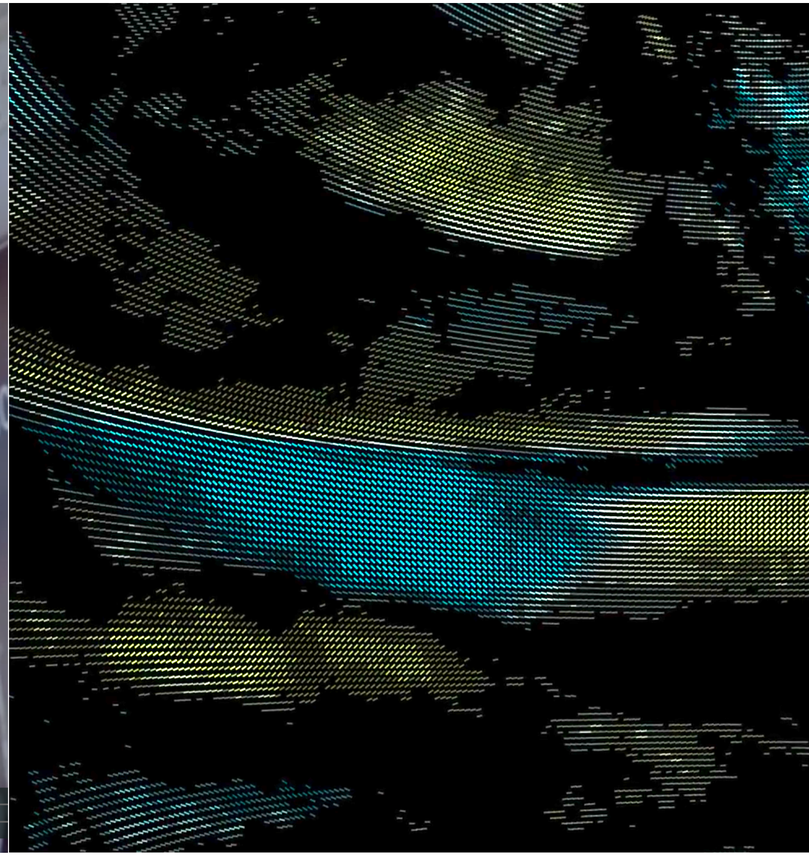
Interactive application

We could present the interactive Project Ukko web application on a large touchscreen or mouse-/trackpad controlled device. The application does not require any keyboard input.



Summary video

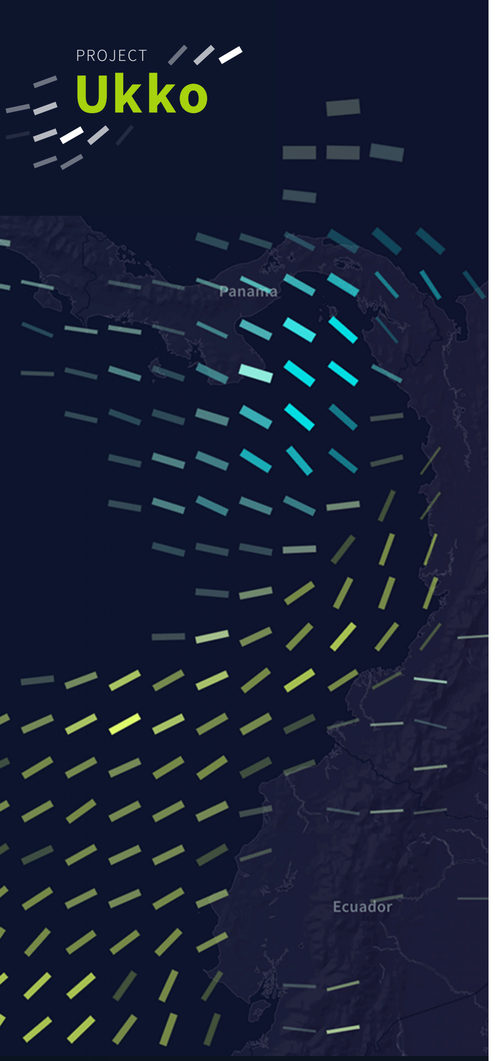
The summary video could be an addition (or lo-fi alternative)
https://vimeo.com/futureeverything/ukko

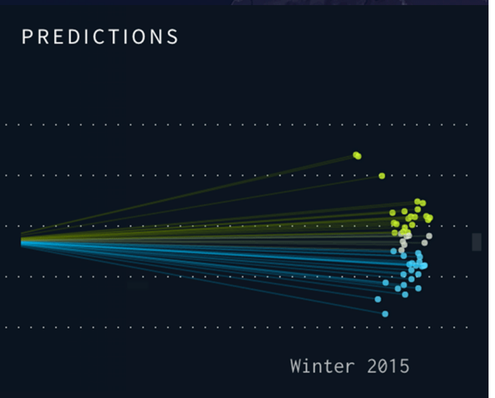


Ambient movie loop

In addition, we are currently creating a data-artistic remix of the data set and visual language in the form of an ambient, information-aesthetic movie loop with a supporting soundscape. It could be presented in addition to the application.

A preliminary preview is available here:
https://vimeo.com/155433213/e27930517e





PROJECT

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Data visualisation by Moritz Stefaner.
Project Ukko director Drew Hemment.

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Scientific coordination: Melanie Davis, Isadora Jiménez, Paco Doblas-Reyes, Carlo Buontempo
RESILIENCE seasonal predictions: Veronica Torralba, Nube González-Reviriego, Paco Doblas-Reyes
Based on ECMWF seasonal predictions by RESILIENCE.
Visual identity design: Stefanie Posavec
UI development support: Dominikus Baur
Project management: Tom Rowlands
Wind power capacity data was generously provided by thewindpower.net.

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