



Weather Forecasting for Free Space Optical Communication

EPIC Online Technology Meeting on Photonics for Earth-to-Space Optical Communication

14/09/2026

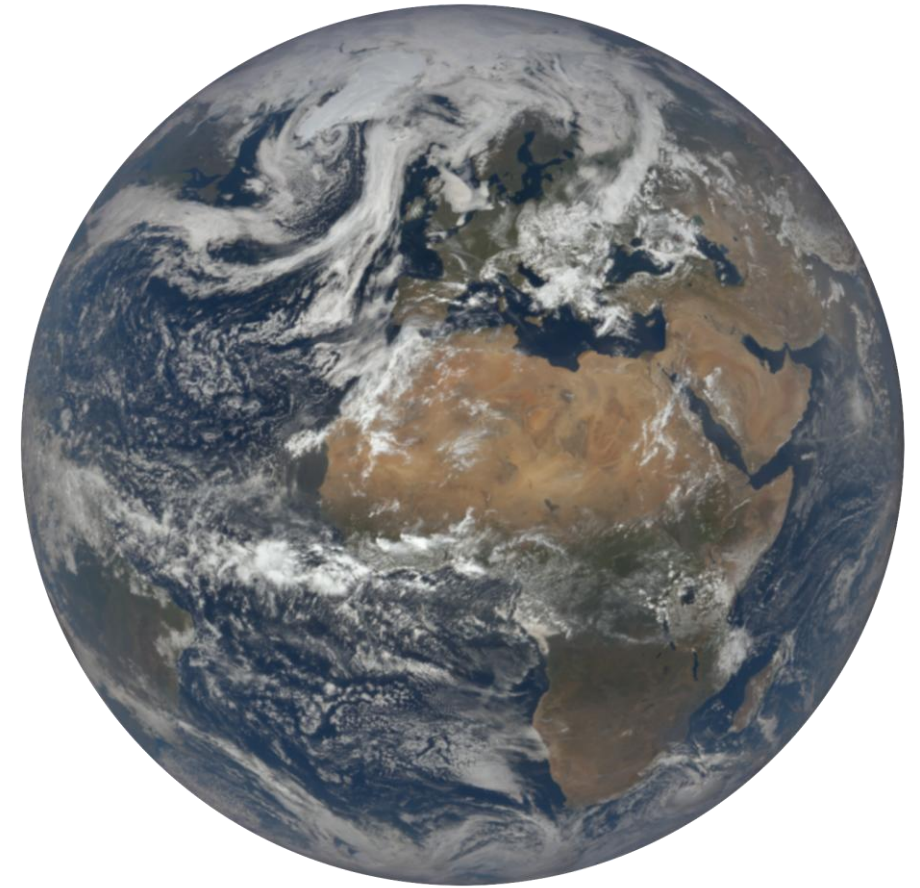


September 26



Reuniwatt

- Founded in 2010 in Reunion Island
- 28 people based in Reunion Island, Toulouse, Paris, Melbourne
- “Cloud sensitive” applications :
 - Solar energy
 - Satellite observation
 - **Free-space optical communication**
- Cloud observation and forecasting expertise from minutes to a few days ahead
 - **Sky imagers**
 - **Satellite data**
 - **Numerical Weather Prediction Models**

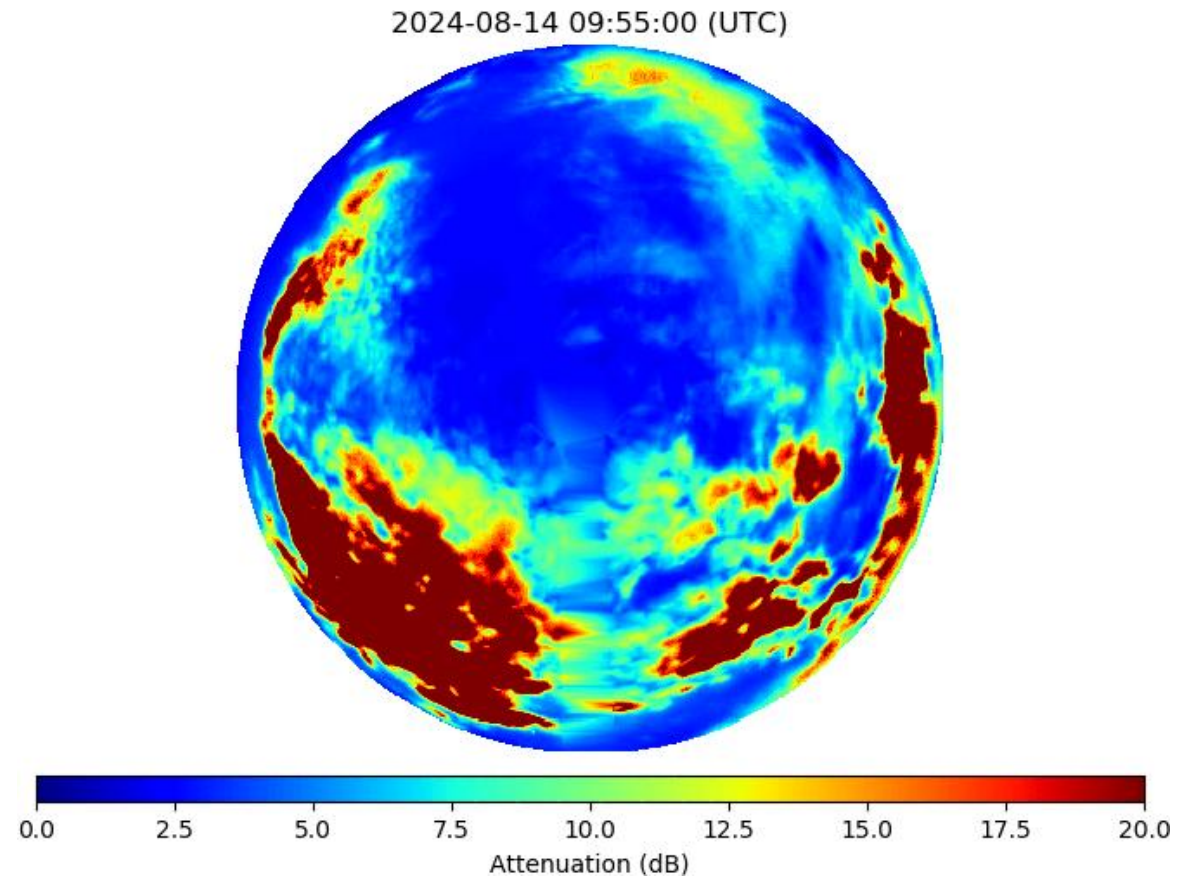


Ground observation

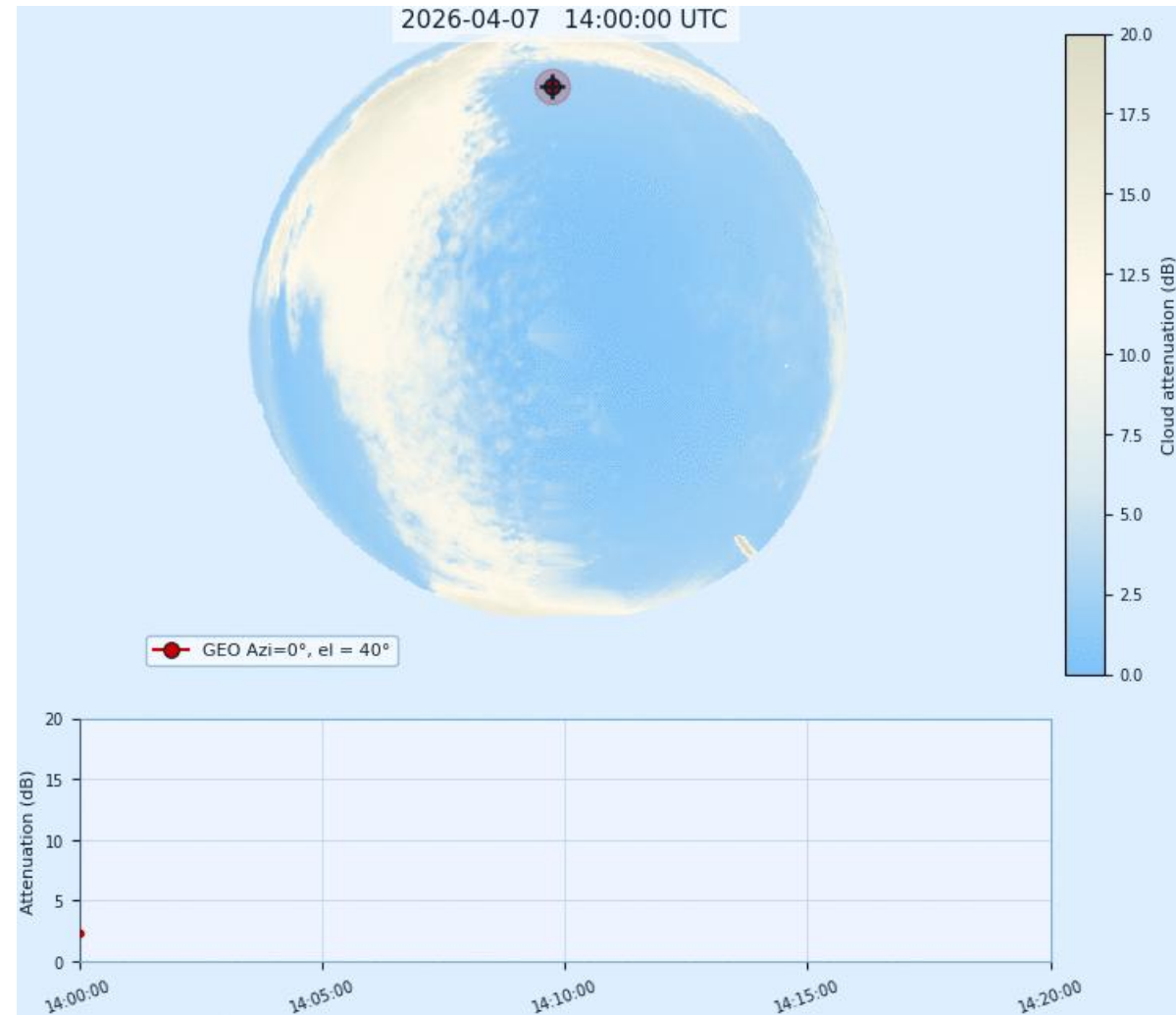


Sky InSight™

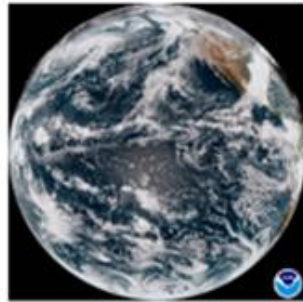
Thermal infrared sky imager



Link budget analysis



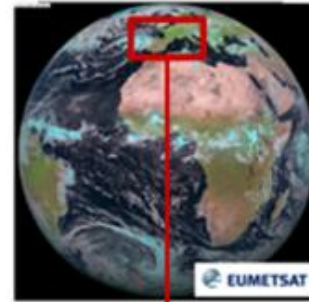
Satellite observation & forecasting



GOES-17 (West)



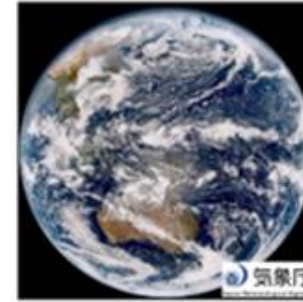
GOES-16 (East)



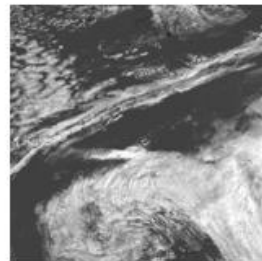
Meteosat-11 (Prime)



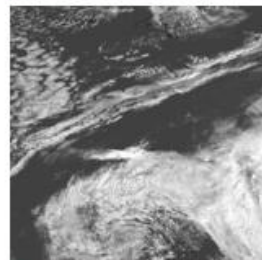
Meteosat-8 (IODC)



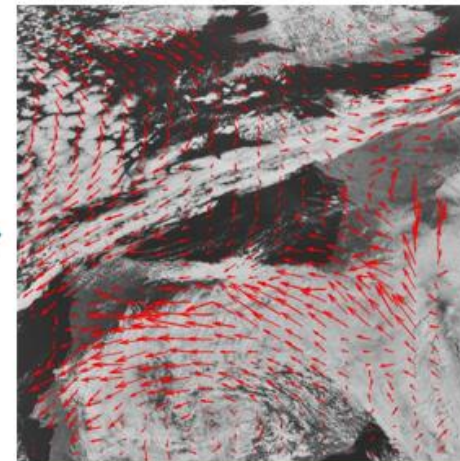
Himawari-8



T0-15 min cloud map

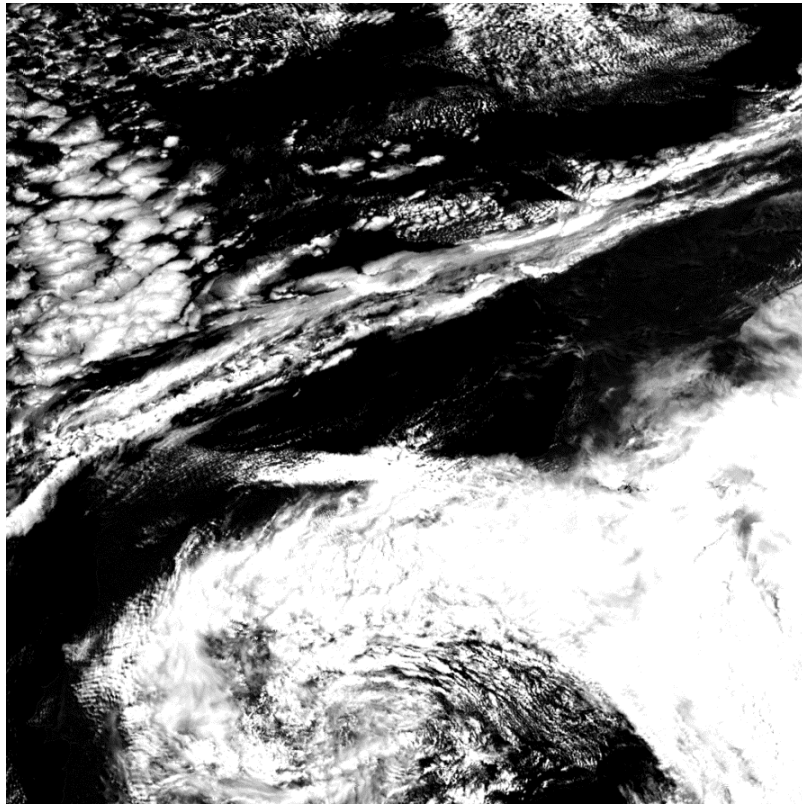


T0 cloud map

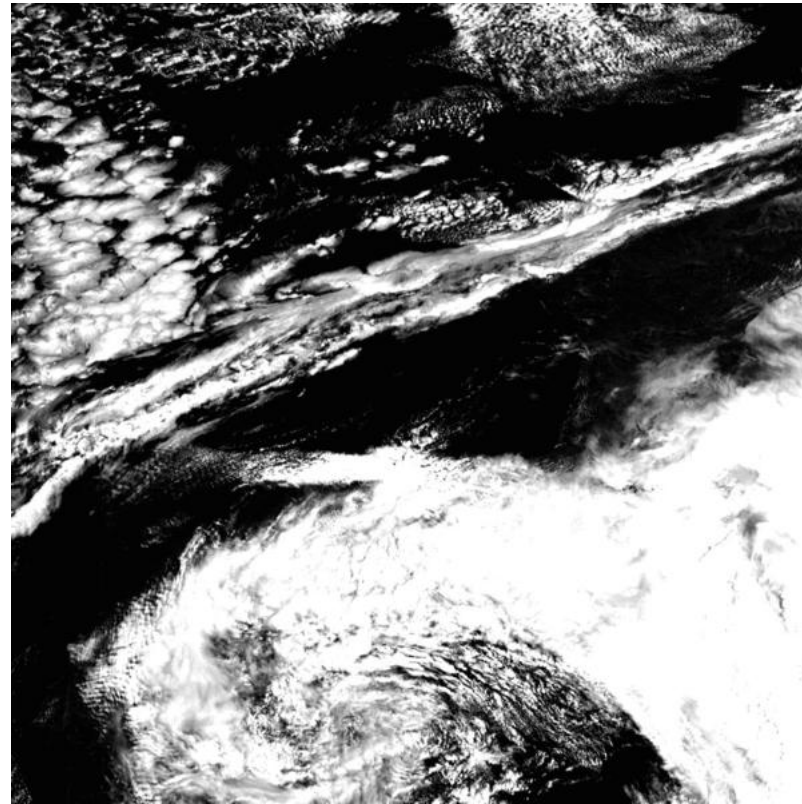


Cloud Motion Vector

Satellite observation & forecasting



Cloud Index at T0

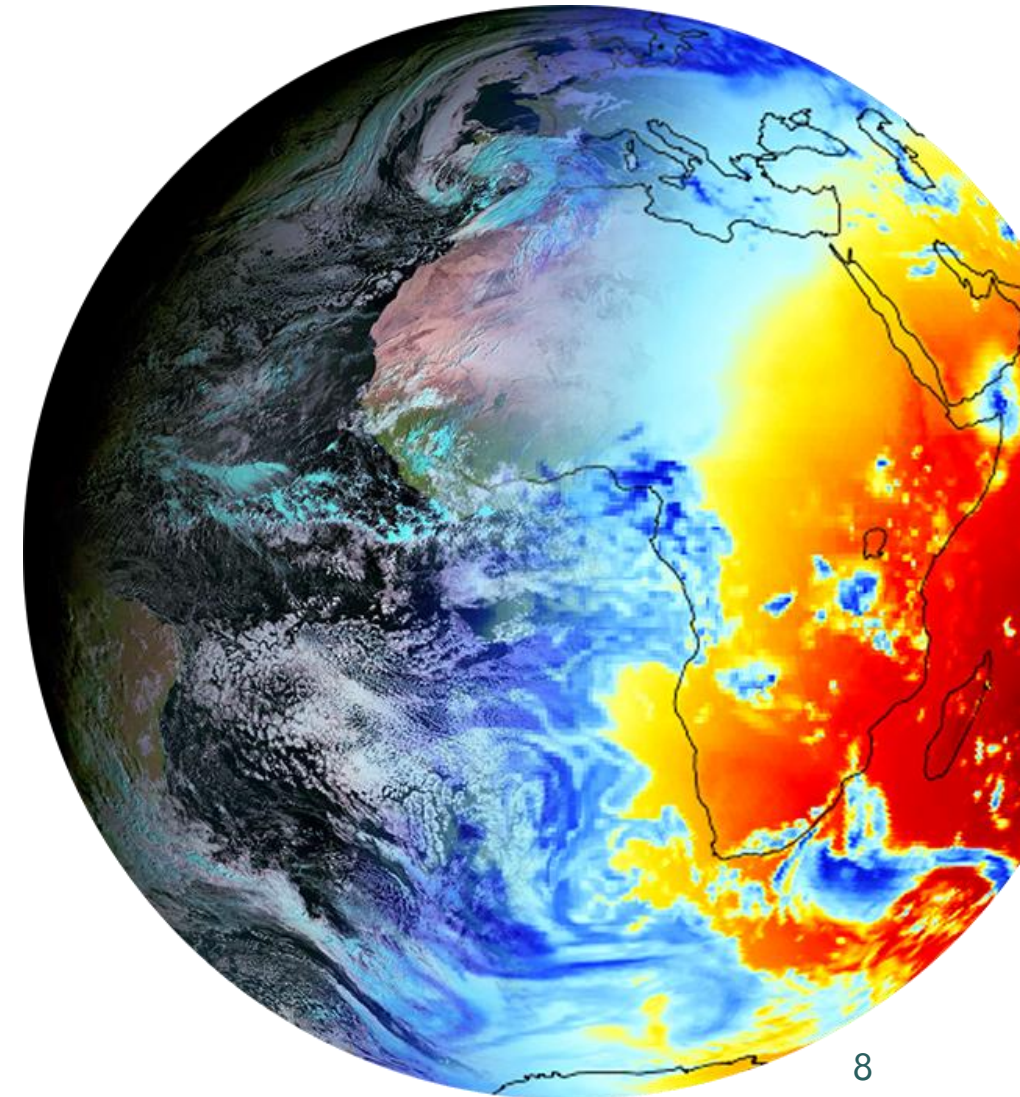


Forecasted Cloud index up to T0+6h (15 min resolution)

DayCast™: day-ahead forecasting using a blend of weather models

- ✓ **Global service**
- ✓ **Reliability** and **robustness** thanks to the use of multiple sources
- ✓ **Calibration on ground measurement**

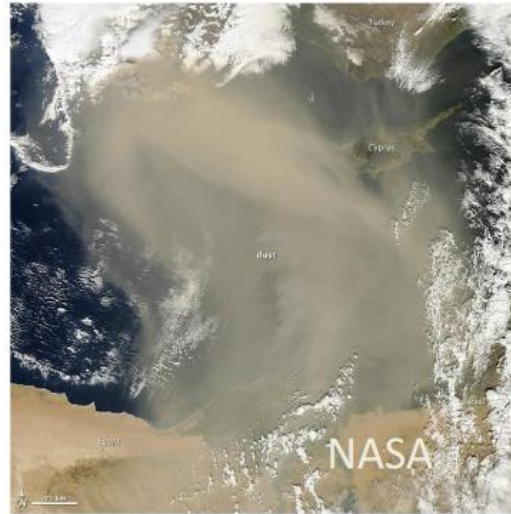
NWP model	Coverage	Operating agency	Origin
IFS	Global	European Centre for Medium-Range Weather Forecasts (ECMWF)	EU
ICON	Global	Deutscher Wetterdienst (DWD)	DE
ICON-EU	Europe		
ICON-D2	Central Europe		
ARPEGE	Global	Météo-France	FR
ARPEGE-EU	Europe		
AROME	France & French overseas territories		
MOGAD*	Global	UK Met Office	UK
GFS	Global	National Centers for Environmental Prediction (NCEP)	US
GEFS	Global		
HRRR	North America		
NAM	North America		
GEM	Global	Environment Canada	CA



What about aerosols ?



Volcanic ash



Dust plume



Biomass burning

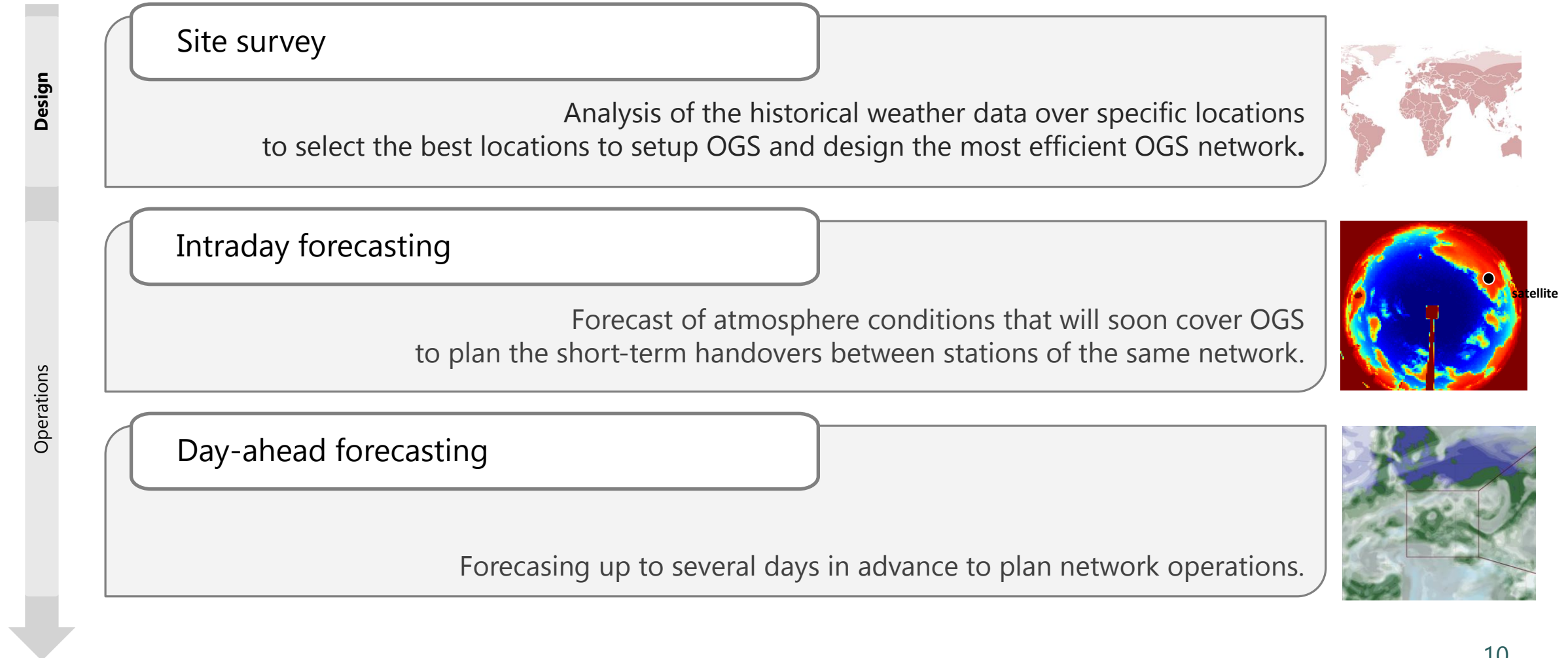


Exhaust gases



Sea spray

Atmospheric characterization and forecasting



Contact

Would you like more information?
Do not hesitate to contact us.

Olivier Liandrat



**Sky imaging team leader at
Reuniwatt**

E-mail:

Olivier.Liandrat@reuniwatt.com



— Reuniwatt —

Excellence in forecasting

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