



Using all-sky cameras to observe clouds and their evolution in the context of climate change

G. Roussel



Reuniwatt: a leader in cloud observation and forecasting



Founded in
2010

Serving
3
markets: Renewable
energies, Atmospheric
sciences, Defence & Space

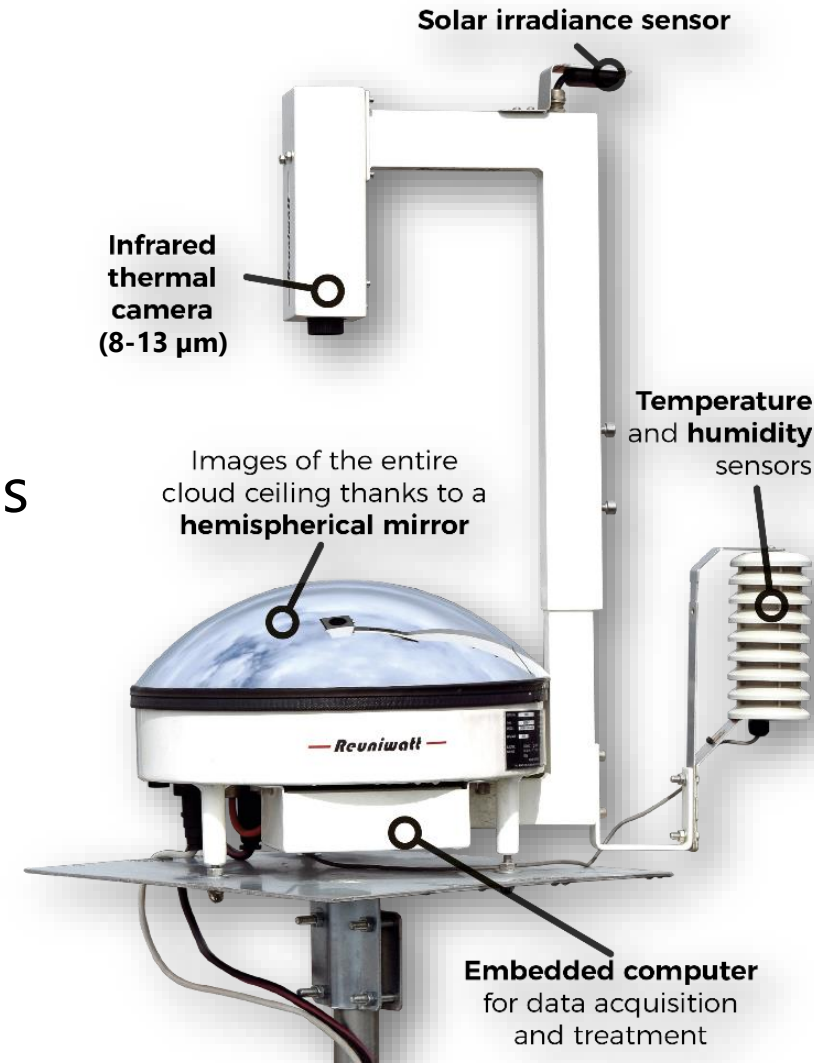
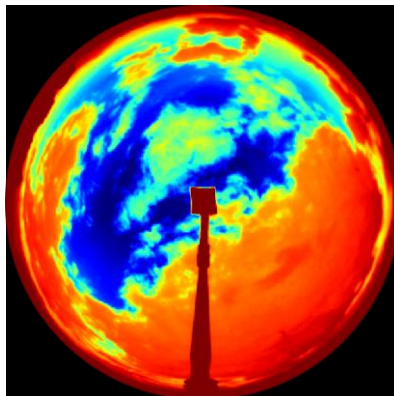
Various forecasting sources:

- in-situ cameras
- geostationary satellites
- numerical weather prediction models

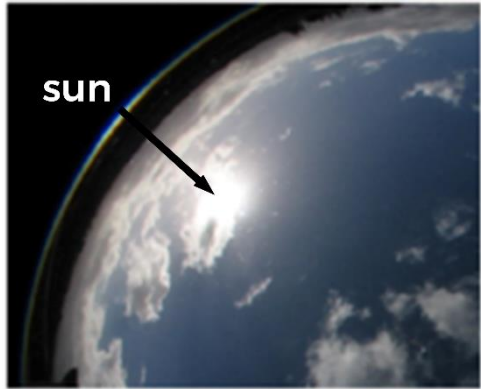
Strong R&D investments
400,000
hours, > 100 publications, 5
patents

Sky InSight™: the thermal infrared sky imager

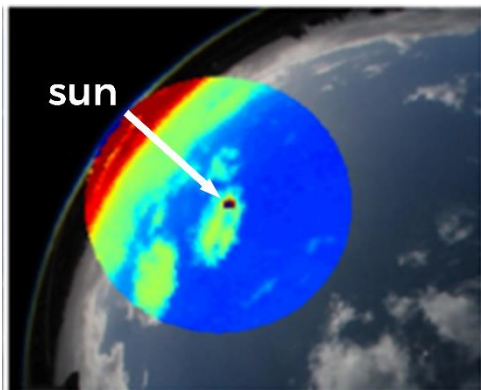
- Derivable properties:
 - Cloud Base Height
 - Cloud Optical Depth
 - Global Horizontal Irradiance
 - Cloud Fraction
- Maximum forecast horizon: 30 minutes



Infrared imaging benefits

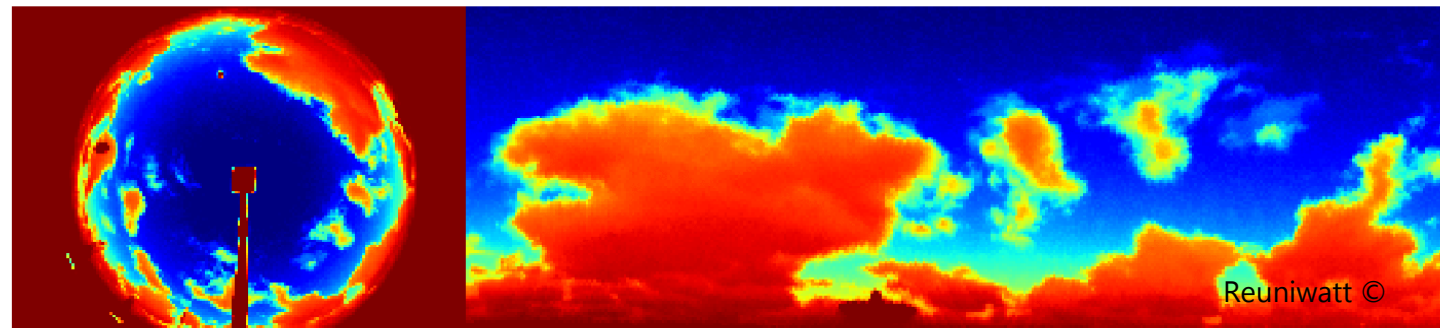


VISIBLE



INFRARED

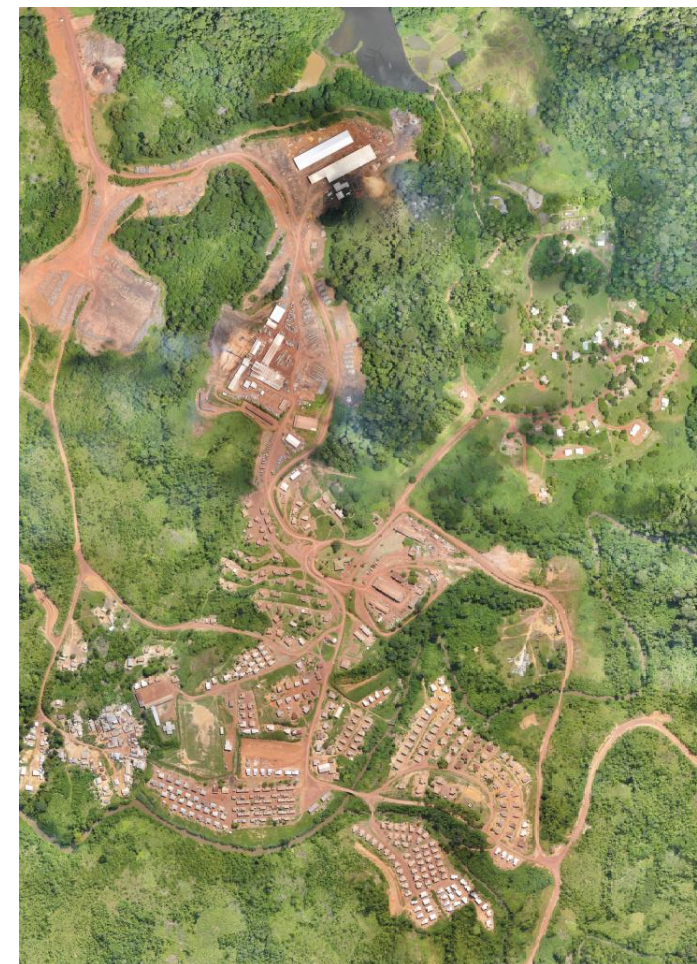
- Night and day operation without sensibility change
- No sun flare
- Radiometric contrast useful for cloud property retrieval



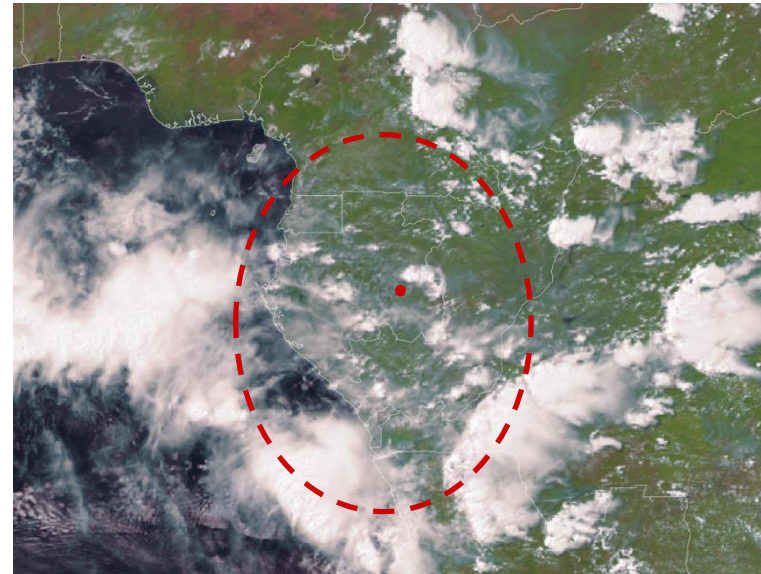
Horizon view, Toulouse, 2017-09-25

DYVALOCCA project: overview

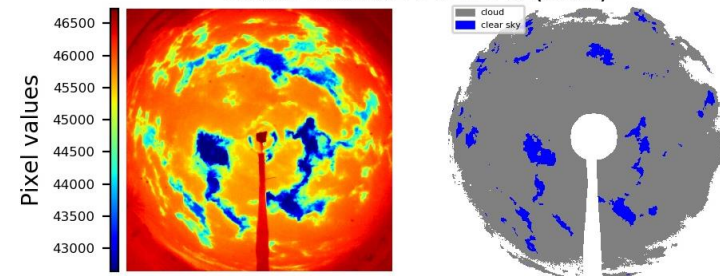
- Collaboration between French, German and Gabonese partners
- Study area: Bambio, Gabon
- Unique phenomenon: persistence of a low cloud cover during the dry season which keeps the forest cool and humid
- Main purpose: monitor the evolution of these clouds and evaluate their effects on water and light availability for the forest
- Activities:
 - Long-term in-situ measurements
 - Numerical modelling
 - Field campaign



DYVALOCCA project: field campaign



2022-08-05 04:43:30
Cloud fraction : **94.4%** (BKN)



- Realized in July 2022
- Measurement material:
 - Ceilometer
 - Disdrometer
 - Sodar
 - Microwave sounder
 - Tethersondes and radiosondes
 - Sky Insight

Contact

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

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— Reuniwatt —

Excellence in forecasting

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