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**— Reuniwatt —**

*Excellence in forecasting*

## PORTFOLIO

Cloud products and services  
for aeronautical applications

# REUNIWATT

A LEADER  
IN CLOUD  
OBSERVATION  
AND  
FORECASTING

2010

A pioneer in solar forecasting, founded in La Réunion to enable safe and massive penetration of solar energy into the grid.

2023

A leader in cloud observation & forecasting, with projects worldwide.

## ONGOING RESEARCH TO EXPAND KNOWLEDGE ON CLOUD COVER



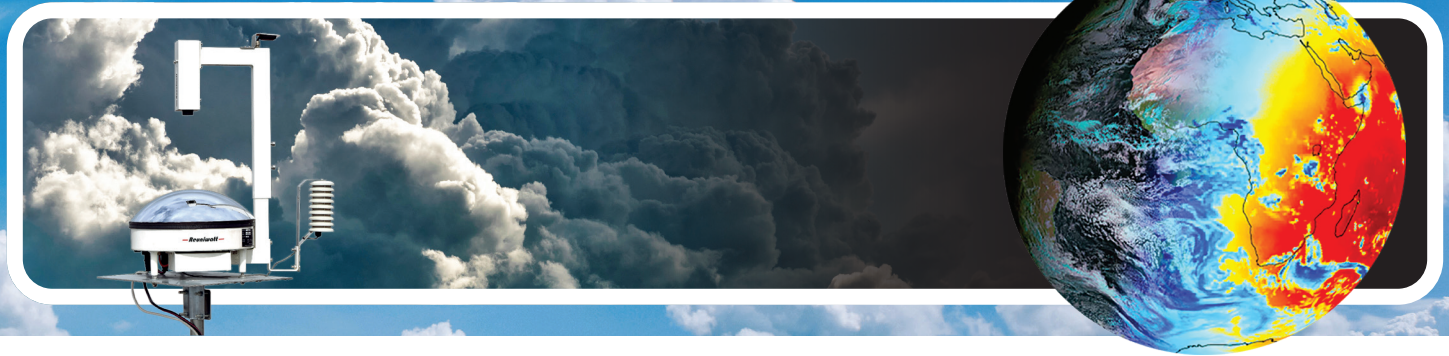
The research project ICamCloudOps is a cooperation between the Deutscher Wetterdienst (DWD) and Reuniwatt. It aims at developing data assimilation methods using machine learning and observations of the atmosphere from ground-based sky cameras to improve weather forecasts. The final objective is to improve hour-scale forecasts of cloud and cloud-related phenomena such as rain or thunderstorms.



Bundesministerium  
für Verkehr und  
digitale Infrastruktur

# Cloud Cover Forecasting

HIGH PRECISION FORECASTS:  
**InstaCast™**



## CLOUD DATA FOR SAFE AIRPORT OPERATIONS



### DayCast™

Cloud parameters and weather forecasts up to several days in advance, combining several **Numerical Weather Prediction models** and **artificial intelligence** techniques.



### HourCast™

Cloud cover and weather forecasts up to 6 hours in advance, analysing **satellite images**.



### InstaCast™

## HIGHEST ACCURACY FOR THE UPCOMING MINUTES

Cloud cover forecasts up to 30 minutes in advance, with a 1-minute granularity.

These insights are especially useful for atmospheric research purposes, aeronautical and aerospace applications, to prepare for sudden changes in the weather and visibility.

*InstaCast™ requires using an all-sky imager onsite.*



## OBSERVE THE SKY FROM THE GROUND

BEST-IN-CLASS:  
**Sky InSight™**



### GATHER CLOUD INFORMATION

#### **Sky Cam Vision**

Using fisheye technology, this visible all-sky imager guarantees a complete observation of the cloud ceiling.

#### **Sky InSight™**

Using infrared technology, this all-sky imager allows for unprecedented accuracy in cloud detection, cloud movement forecasts, and upcoming cloud optical depth (COD) and attenuation effect even before sunrise.

Both are fully functional offline, thus fit for remote sites. Their included embedded computers allow for the calculation of highly accurate cloud parameters.

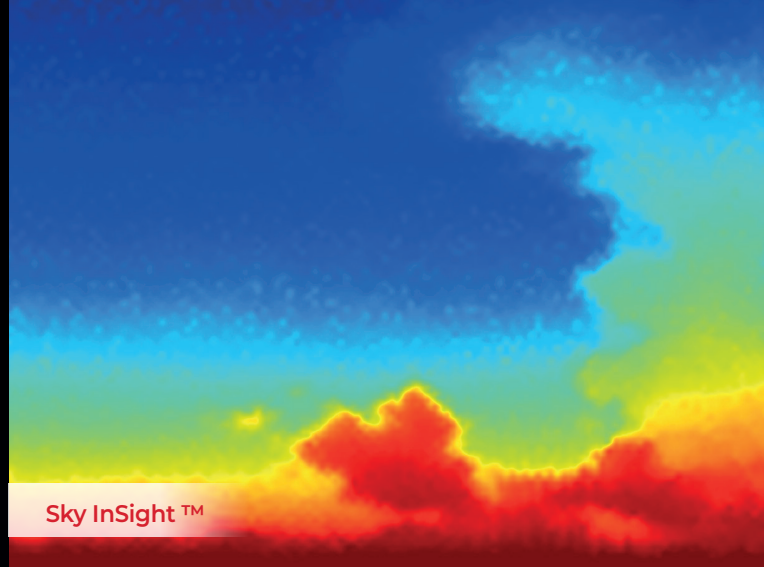
## ALL-SKY IMAGERS

### PIVOTAL TOOL FOR RELIABLE AND HIGH-PRECISION CLOUD DATA

Sky imagers observe the cloud ceiling from the ground. They capture visible-range and infrared images, from which they compute different cloud characteristics. These parameters include cloud base height (CBH), cloud type, and cloud motion, which provide key insights for multiple use cases.



Sky Cam Vision



Sky InSight™

The CONTRAILS project aims at developing and combining advanced trustworthy AI methods and physical models to improve contrail identification, characterization, data assimilation, and prediction. Sky imagers provide the data sets analysed to better understand the physical process underlying contrails' formation.



Reuniwatt and EUROCONTROL cooperate to further study the development of condensation trails. Data sets from sky imagers and satellite imagery allow following their evolution on a large scale and for long periods of time.



The final objective is to expand our knowledge on the formation of contrails to develop strategies to lower the impact of aviation on global climate.



Reuniwatt has developed software services enabling advanced analyses of the cloud cover which can be used for airport traffic management or meteorological observations. Sky imagers provide a number of crucial insights for air traffic activities on live and upcoming cloud cover, such as METAR code, cloud movement, cloud type, and cloud base height.

Reuniwatt's infrared thermal imagers have been deployed at airports in Italy and Switzerland for 24/7 sky observation and cloud monitoring.

- ▶ **Helps air traffic controllers** to identify critical weather phenomena day and night.
- ▶ **Improves the airport's safety** against potential weather hazards by observing the evolution of convective clouds.
- ▶ **Helps to prepare** for sudden changes in the weather and visibility.