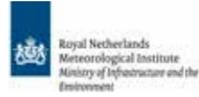


## Eight national partners

Three Dutch universities and five major research institutes and agencies collaborate in the CESAR Consortium. It is the focal point of experimental atmospheric research in The Netherlands, and is internationally recognized as a good example of national collaboration. The CESAR Consortium is formally in place since 2002.



Delft University of  
Technology, TU Delft



Royal Netherlands  
Meteorological Institute,  
KNMI



Institute for Marine and  
Atmospheric research  
Utrecht University, IMAU



European Space  
Agency, ESA-ESTEC



Wageningen UR



National Institute for  
Public Health and the  
Environment, RIVM



Netherlands Organisation  
for Applied Scientific  
Research, TNO



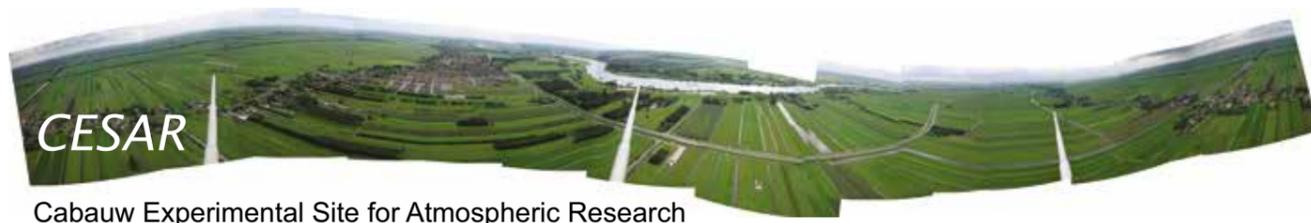
Energy research Centre  
of the Netherlands,  
ECN

## Role in international network of observatories

CESAR participates in a large number of international observing networks. Sharing data, harmonizing data formats, set standards for calibration, exchange user experiences, all these activities aim to enhance the use of the data collected and facilitate international measurement campaigns.

- Baseline Surface Radiation Network BSRN
- European Aerosol Research Lidar Network EARLINET
- The Global Atmosphere Watch Aerosol Lidar Observation Network GALION
- Coordinated Energy and Water Cycle Observations Project CEOP
- Aerosols Clouds and Trace Gases Research Infrastructure Network ACTRIS
- European network for observing cloud profiles Cloudnet
- Global Atmosphere Watch GAW
- GCOS Reference Upper Air Network GRUAN
- EUCOS Windprofiler Network E-WINPROF
- International Network of Ground-based Microwave Radiometers MWRnet
- Integrated non-CO<sub>2</sub> Observing System InGOS
- Integrated Carbon Observing System ICOS

[www.cesar-observatory.nl](http://www.cesar-observatory.nl)



CESAR

Cabauw Experimental Site for Atmospheric Research



# CESAR

Cabauw Experimental Site for  
Atmospheric Research

## CESAR Observatory Cabauw Experimental Site for Atmospheric Research

The CESAR Observatory is located in the western part of the Netherlands (51.971° N, 4.927° E) in a polder 0.7 m below average sea-level. At the site a large set of advanced instruments is operated for

- Monitoring of long term trends in atmospheric changes
- Process studies for climate, weather and air quality modeling
- Validation of satellite observations
- The development of new measurement technology
- Training of young scientists

A unique feature of the site is the 213 meter high observation tower, which is used to establish a thorough understanding of physical and chemical processes in the lower atmosphere. The tower is augmented with a comprehensive set of in-situ observations near the surface and with a multitude of ground-based remote sensing stations. The observatory gives an accurate description of the atmosphere, from just below ground level up to an altitude of approximately 10 km.

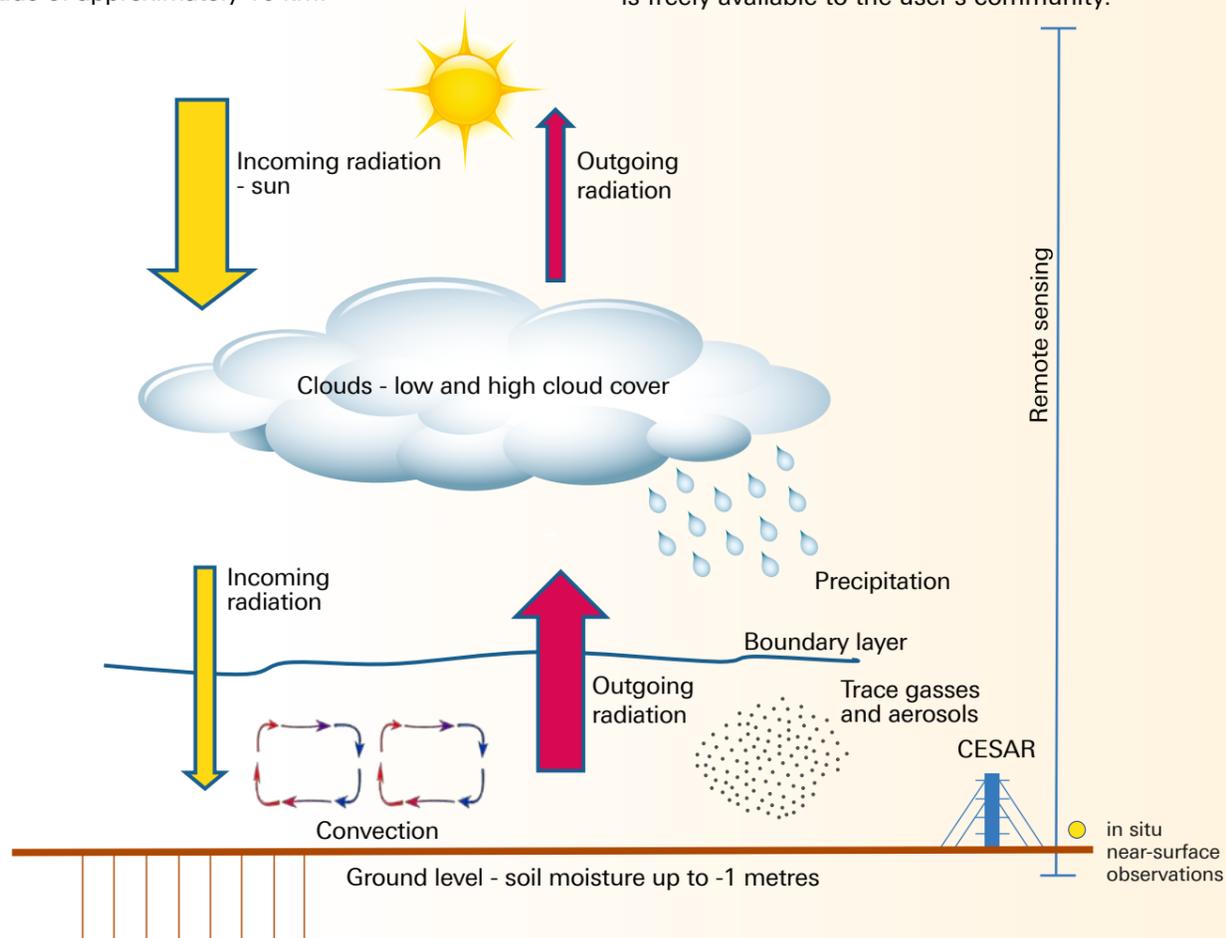


### What is measured at CESAR Observatory?

At the observatory data is continuously collected of

- Soil temperature and moisture
- Wind and turbulence
- Energy exchange at the surface
- Aerosols and (greenhouse) gases
- Solar and infrared radiation
- Clouds and rainfall

With this integral set of observations the scientific community can study physical and chemical processes in the atmosphere for a better understanding of the water cycle, air quality, weather and climate. The data is freely available to the user's community.



### How are observations applied?

By building a sustained data set *long term trends* in the atmospheric composition can be quantified, like changes in greenhouse gases, air quality, extreme rainfall and radiation. Such information can be used in emission and impact assessment studies.

*Process studies* of the atmosphere are performed to increase our understanding and reduce the uncertainty of climate, weather and air quality models.

Ground observations are indispensable for the quality assurance and validation of *satellite products*.

The observatory serves as a test bed for *new observation techniques*, either for the development of new methodologies, algorithms or new instruments.

The observatory offers many possibilities for the *training of young scientists*. This might be during national and international observation campaigns at the site, PhD programs at universities or as part of EU-funded access programs.



### How unique is CESAR Observatory?

The CESAR Observatory is unique. It is one of very few observatories around the world that monitors such a wide scope of relevant processes in atmospheric chemistry and physics, hydrology and meteorology. The observatory plays a prominent role in many international observation networks.

The site is representative for a large part of the Netherlands. Monitoring conditions do not differ significantly from those in 1972, when the mast was built. This makes the site ideal for representative long term atmospheric measurements.

The site is strategically located in the heart of the Dutch metropolis region The Randstad, but also occupies a unique location in the vital European delta-triangle Amsterdam-Antwerp-Frankfurt.