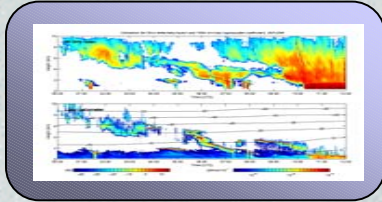




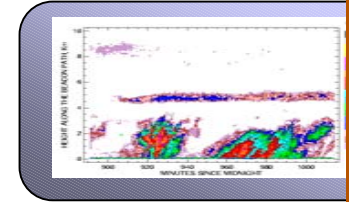
# CLRC Chilbolton Observatory



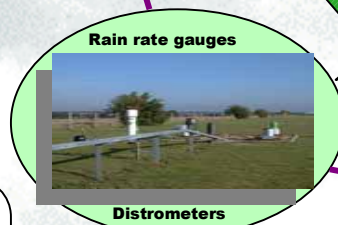
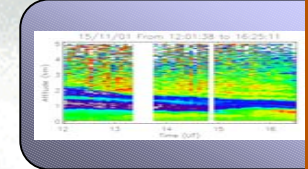
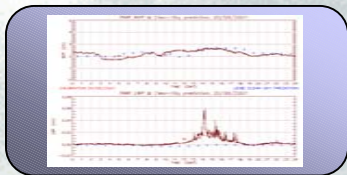
A site for the validation of remotely sensed cloud and rain products



- Cloud and Climate related parameters measured at Chilbolton:
- cloud top height
  - radar reflectivity profiles
  - total liquid water path
  - temperature profiles
  - cloud liquid water profiles
  - cloud particle phase
  - long wave radiation
  - cloud base height
  - lidar backscatter profiles
  - integrated water vapour path
  - water vapour profiles
  - cloud particle sizes
  - cloud particle fall speeds
  - short wave radiation



- Rainfall and meteorological parameters measured at Chilbolton:
- radar reflectivity
  - linear depolarisation ratio
  - Doppler velocity
  - particle phase
  - rainfall rate
  - clear air winds in troposphere
  - differential reflectivity
  - differential phase
  - spectral width
  - rain drop sizes & shape
  - melting layer
  - relative humidity



8 Km



The Chilbolton Observatory in Southern England hosts a range of active and passive ground-based remote-sensing instruments that are being used to perform scientific studies of the atmosphere. Those studies are leading to an improved understanding of rain and cloud so that their impact on weather and climate can be better understood.

The Observatory is situated away from most civil air routes, and also away from potential sources of microwave interference. The surrounding region is used primarily for agriculture so that urban contamination is negligible.

Many of the instruments at the site operate continuously providing data sets with which to compare measurements from different satellites.

As part of the European Commission funded FP5 project CLOUDMAP2, radar and lidar observations at Chilbolton are currently being used to improve understanding of cloud measurements made by the ATSR-2 & AATSR sensors carried on the ERS-2 and ENVISAT satellites respectively, and by the MODIS & MISR sensors carried on the TERRA and AQUA satellites.

Chilbolton is set to make a significant contribution to the Global Precipitation Mission (GPM) by making ground validation measurements of rain as part of a European Supersite. The facility is also well equipped to validate cloud profile measurements that will be made by the CLOUDSAT and ESA-EarthCARE missions.

- Collaborating with:
- Dept. of Meteorology, Univ. Of Reading
  - Dept. of Meteorology, Penn. State Univ.
  - Dept. of Geomatic Eng., Univ. Coll. London
  - Dept. of Math., Univ. of Essex
  - Space Sci. Dept., CLRC - RAL

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