



# DACCIWA

Dynamics-aerosol-chemistry-cloud interactions in West Africa

## **Use of Satellite data within DACCIWA**

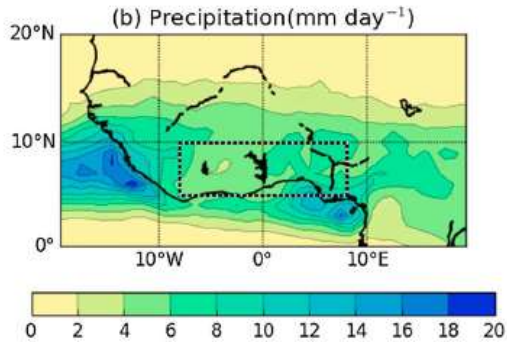
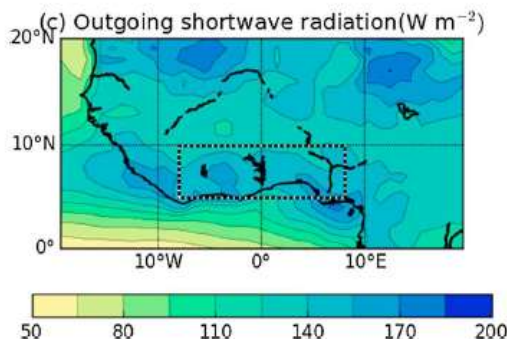
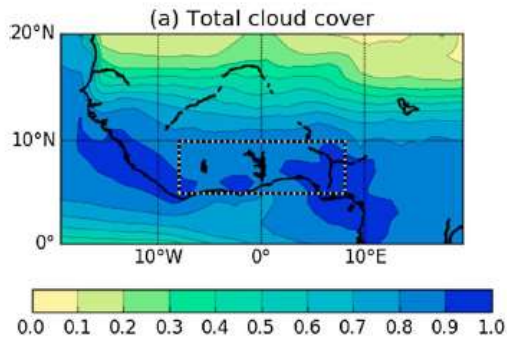
Richard Allan | University of Reading | *Leeds 2016*

# Primary use of satellite data

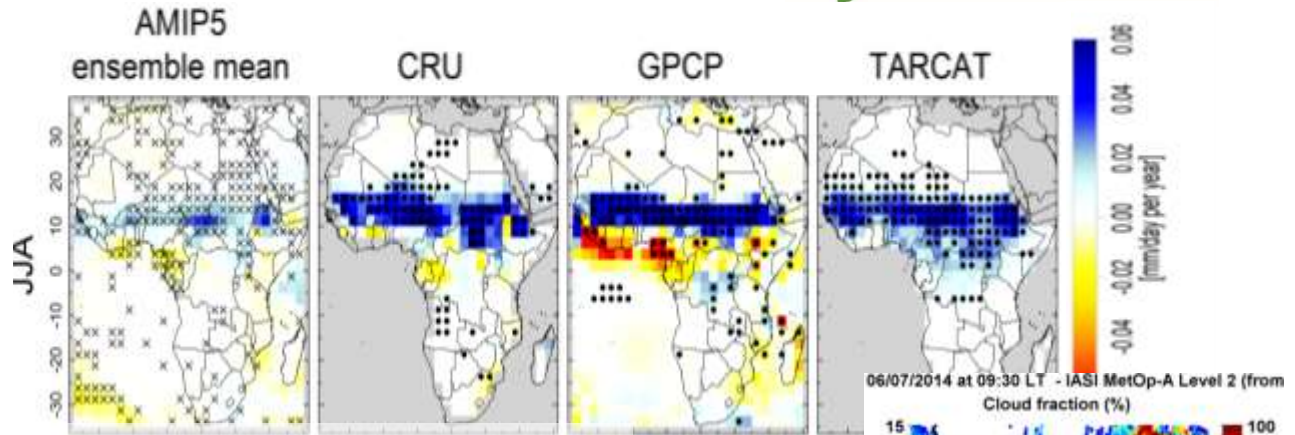


- **Modes of usage:**
  - Processed, climatology and variability to provide context
  - Swath-level data for detailed examination and process understanding
  - Near-real time instantaneous data during field campaign
- **Physical variables of interest**
  - Primary fields: Radiation, Cloud, Precipitation, Aerosol
  - Integrating fields: water vapour, energy/moisture transports, ancillary data (temperature, humidity, winds)

# Primary use of satellite data



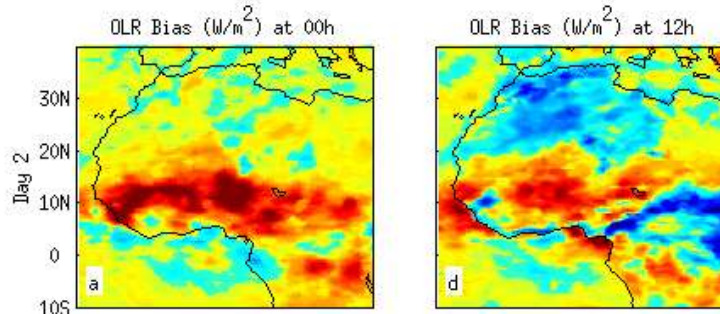
e.g. [Hill et al. 2016 JGR](#)



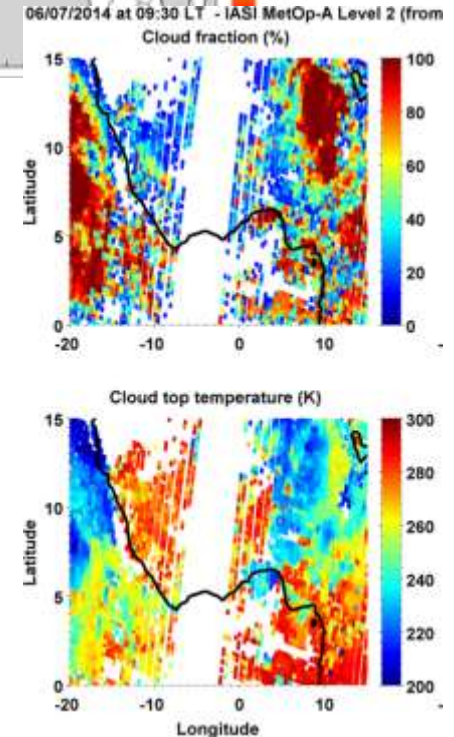
[Maidment et al. \(2015\) GRL](#)

← Climatology →  
 Above: Climate change  
 Field Campaign →

Below: Process level evaluation



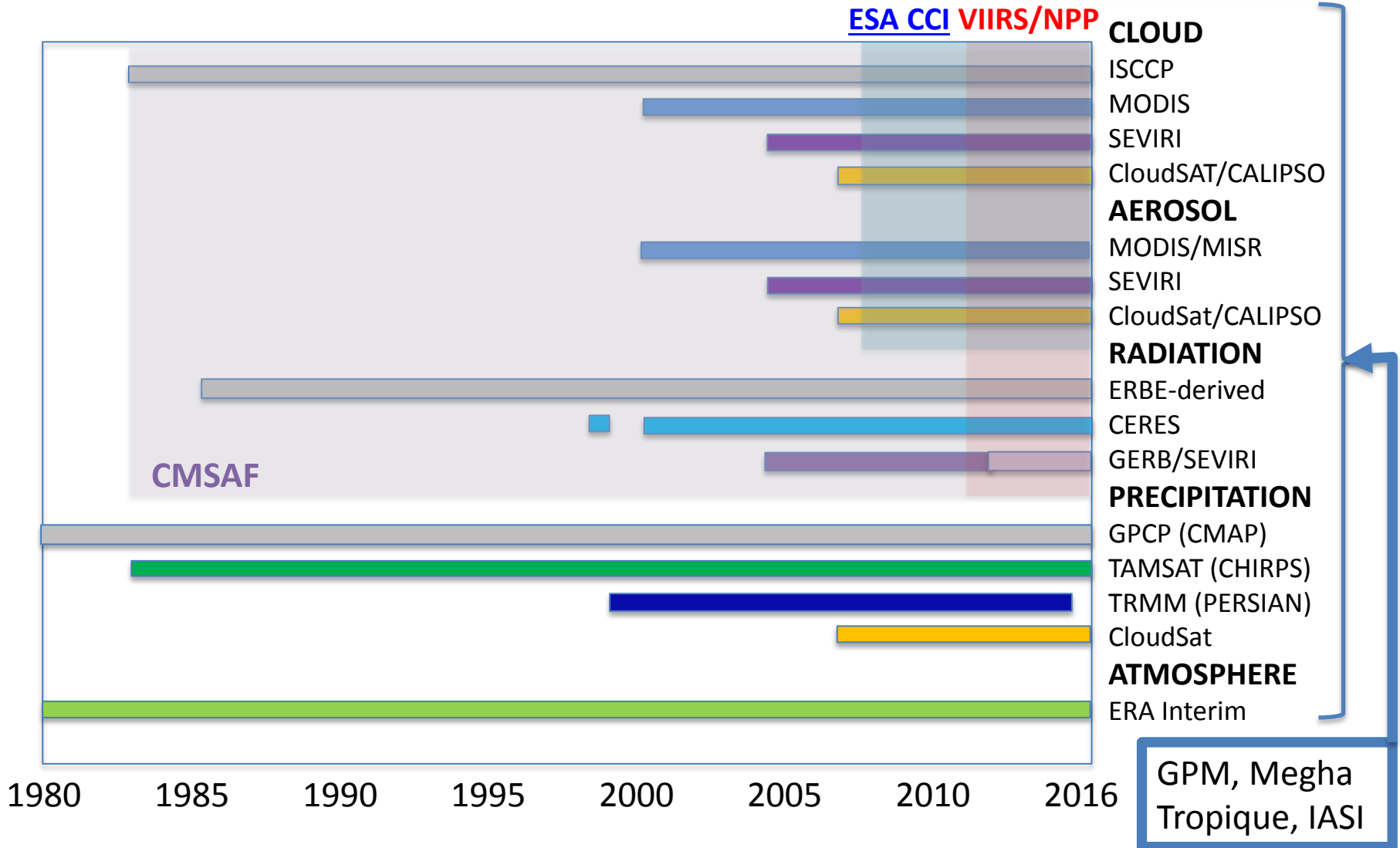
[Liu et al. \(2014\) JAMC](#)



# Satellite products summary



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# Example Activities

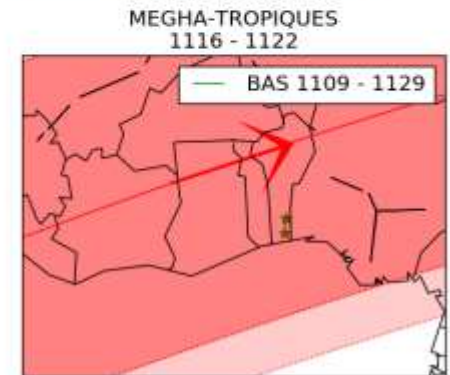
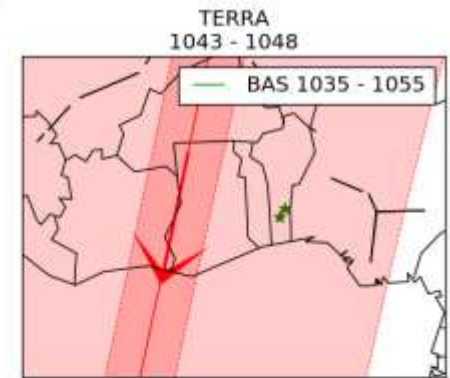
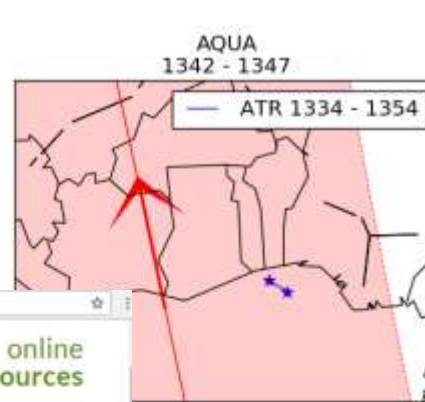


- Sharepoint SEVIRI images
- Satellite product lists
- Satellite overpass times

Instrument (Satellite)	Time period	Data centre	Geophysical parameter
SEVIRI (MSG)	2004-2011	DWD CM SAF	Cloud-top pressure
GERB (MSG)	2004-2011	RMIIB CERF	SW and LW outgoing fluxes
CERES (multiple)	1998-2011	NASA CERES	SW and LW outgoing fluxes
MODIS (multiple)	2002-2011	NASA MODIS	Aerosol and cloud optical depth
CloudSat and CALIPSO	2006-2011	ICARE DARDARII	Collocated vertical profiles of cloud and precipitation
TRMM	1999-2011	NASA TRMM	3-hourly rainfall

Here are some images from these instruments for 23 June 2006

A-Train instruments





# Discussion



- What coordinated satellite data activities would be beneficial? e.g. sharing/[visualisation](#)/communication
- What are the recommended satellite products for precip, radiation, LWC, IWC, cloud cover, aerosols etc.?
- Are there known problems with any products?
- Do we need to define some "gold standards" for people to use?
- Is there any point in having some data centrally or does everybody download their own copy?
- What specific DACCIWA-generated products will become available when?