

# **ESA Telecommunication facility in Africa: DDS**

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# The Ku-DDS performances

- More than 3 millions of files received so far (140 TB) on user side, with a reception success rate which widely exceeds 99%.
- Receiving sites are equipped with a 1.2 m commercial-grade antenna and a PC-based satellite receiver, for an overall cost in the order of 450 €. A return channel via ground link is desirable to achieve the best performance.
- Current dissemination services include the free distribution of MERIS-RR and , AATSR, Sciamachy and MIPAS global data.

# The Africa Scenario

- Extremely wide area;
- Scattered communications and transports infrastructures;
- Investments by EC done on initial supporting infrastructure.

With this scenario, a **pilot service** based on a reliable satellite dissemination system has been considered to provide the African community with an advanced TLC infrastructure.

## The DDS C-band Pilot

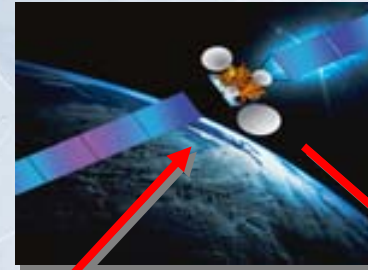
- On March 2005 ESA has decided to start a pilot for the distribution of E.O. data over the entire African continent;
- The DDS system has been selected and extended through a C-band satellite link over the entire African continent;
- 5 complete receiving stations have been made available for the interested ESA projects.
- Commitment to operate the system at least during the supported project's lifetime.

# Planned Services

- **Near-Real-Time dissemination:** capability to send any data (EO on-demand images from ENVISAT, SPOT, ALOS, etc, information products, maps, any other data), to support specific ESA projects, during their duration, e.g.:
  - ❑ Tiger initiative (Water resources management in Africa)
  - ❑ Data User Element projects like Aquifer, Epidemio, Globwetland
  - ❑ GMES projects like Global Monitoring for Food Security (GMFS)
  - ❑ Possibly NRT services for humanitarian aid projects (e.g. RESPOND) using a transportable station
- Support EU partners for generic **electronic delivery (“push”)** via the satellite channel (Maps, Level 3, etc.);
- Satellites **Teleducation** tools.

# Satellite services for AFRICA

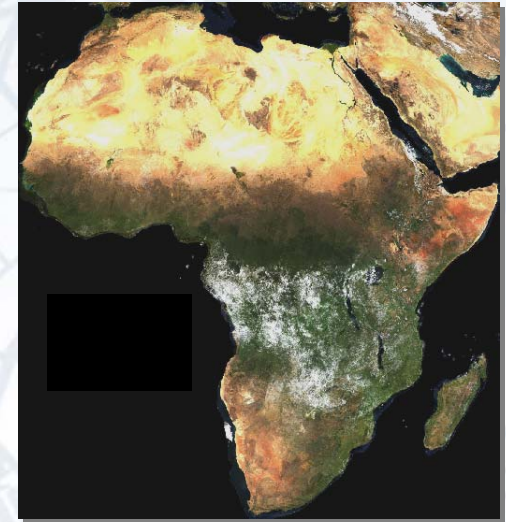
**EO products**



**AB3**

**2.222 MSps**

**Projects**

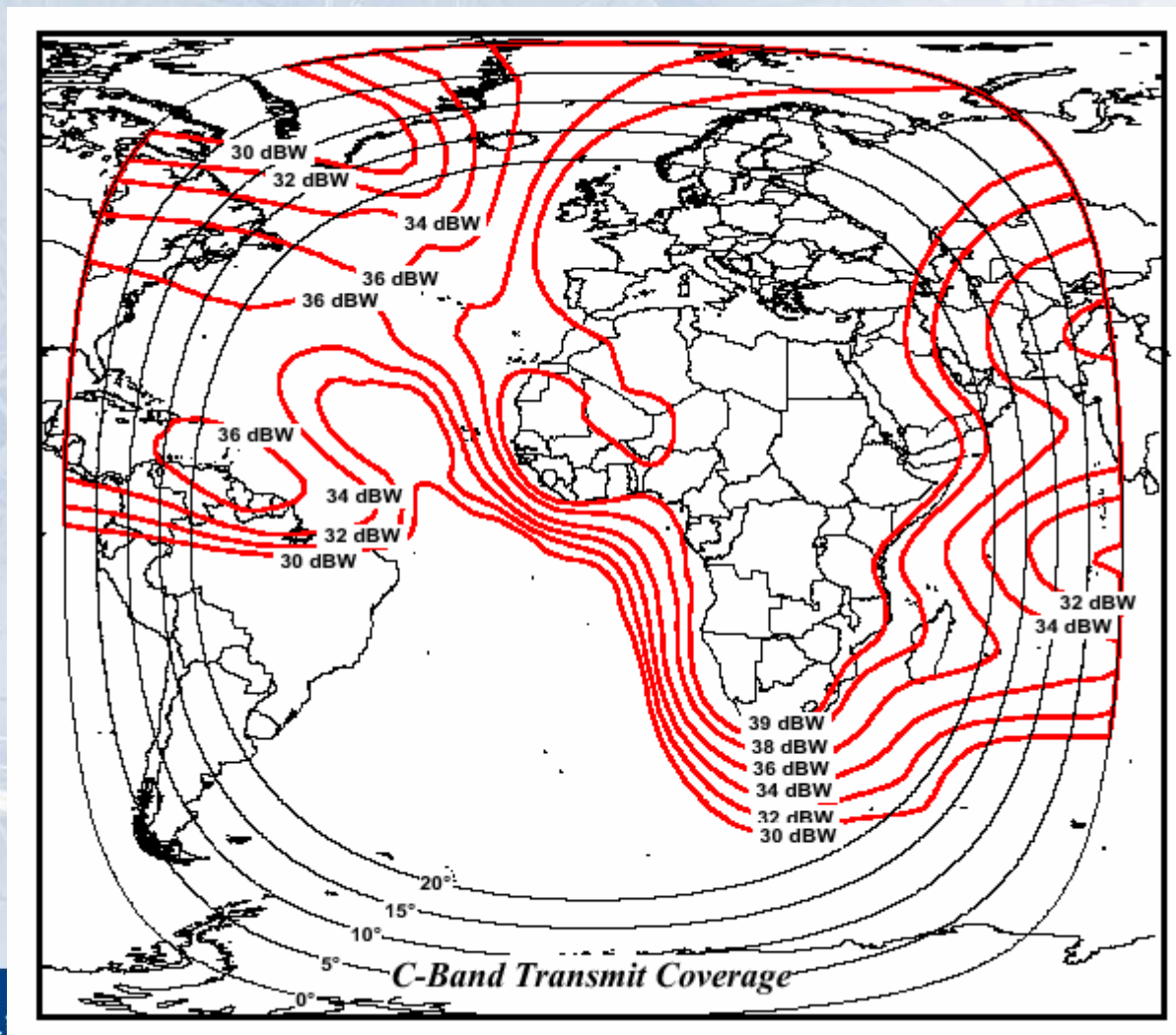


**Primary C-Band Uplink at ESRIN**

**Distance Learning**



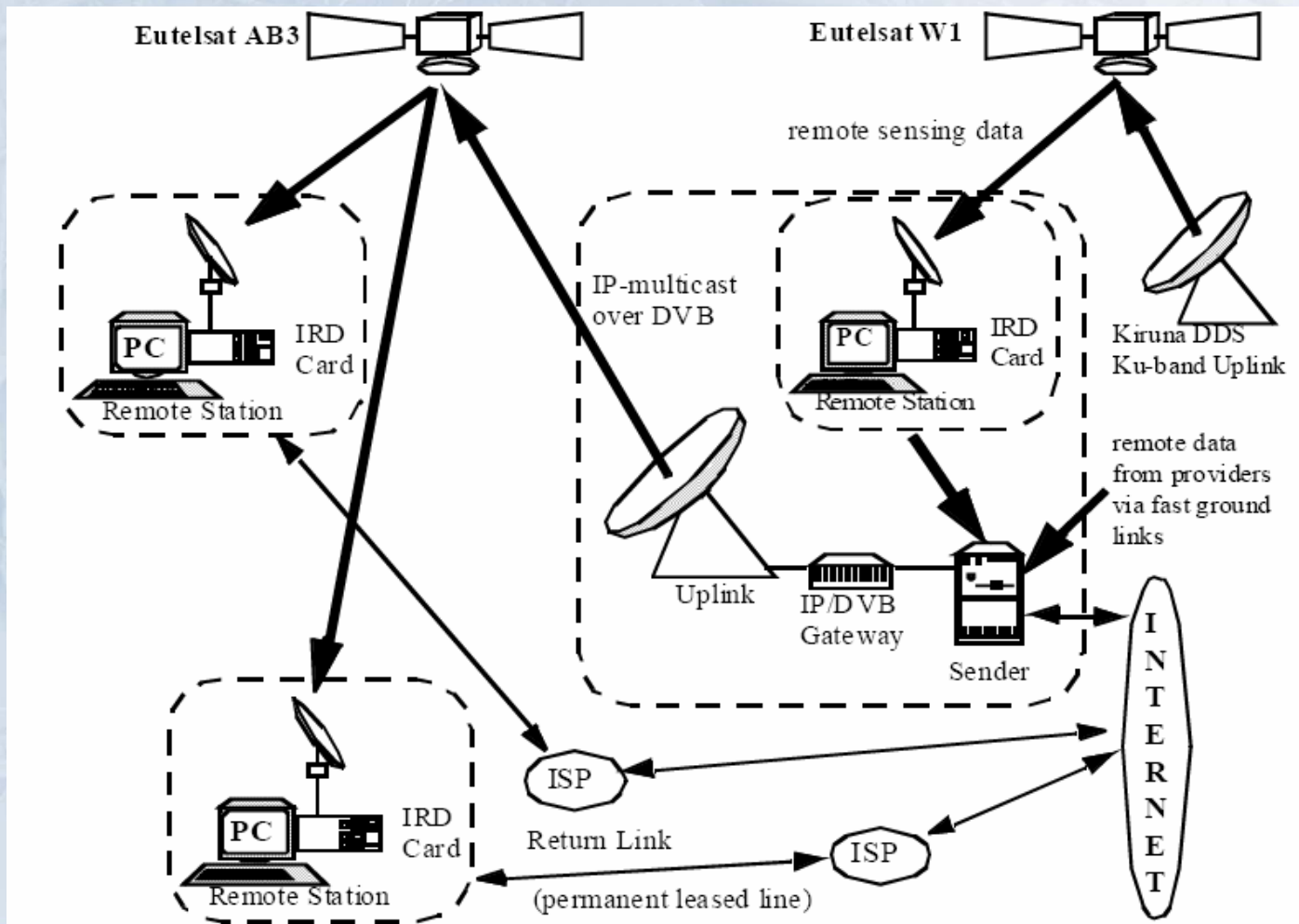
# Atlantic Bird 3 C-band EIRP



## Current status

- Transmissions ongoing every day at least 12h/day, as capacity use is shared with EUI-T (about 8 GB/day dedicated).
- Currently Envisat MERIS-RR African strips data are sent, but system is open to other data;
- A station is already active in CSE Dakar (Senegal).
- A front-end for the external projects (ESIT) is in place.

# The C-band Architecture



# The CSE Station



# C-Band DDS performances

- AB3 satellite and 2.4m antennas selected on the receiving sites provide a similar link margin with respect to Ku-band DDS.
- From first observations on the first C-Band receiver at Dakar (Senegal), the achieved performance are at almost 100% of success rate.
- Maximum complementarities with other dissemination services have been exploited, as possible use of same antenna.

# DDS Future Enhancements

- Additional data may be available on request;
- Wider channel capacity to support more services;
- DVB-RCS (Return Channel via Satellite) with no need of ground return link may be available from June 2006;





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