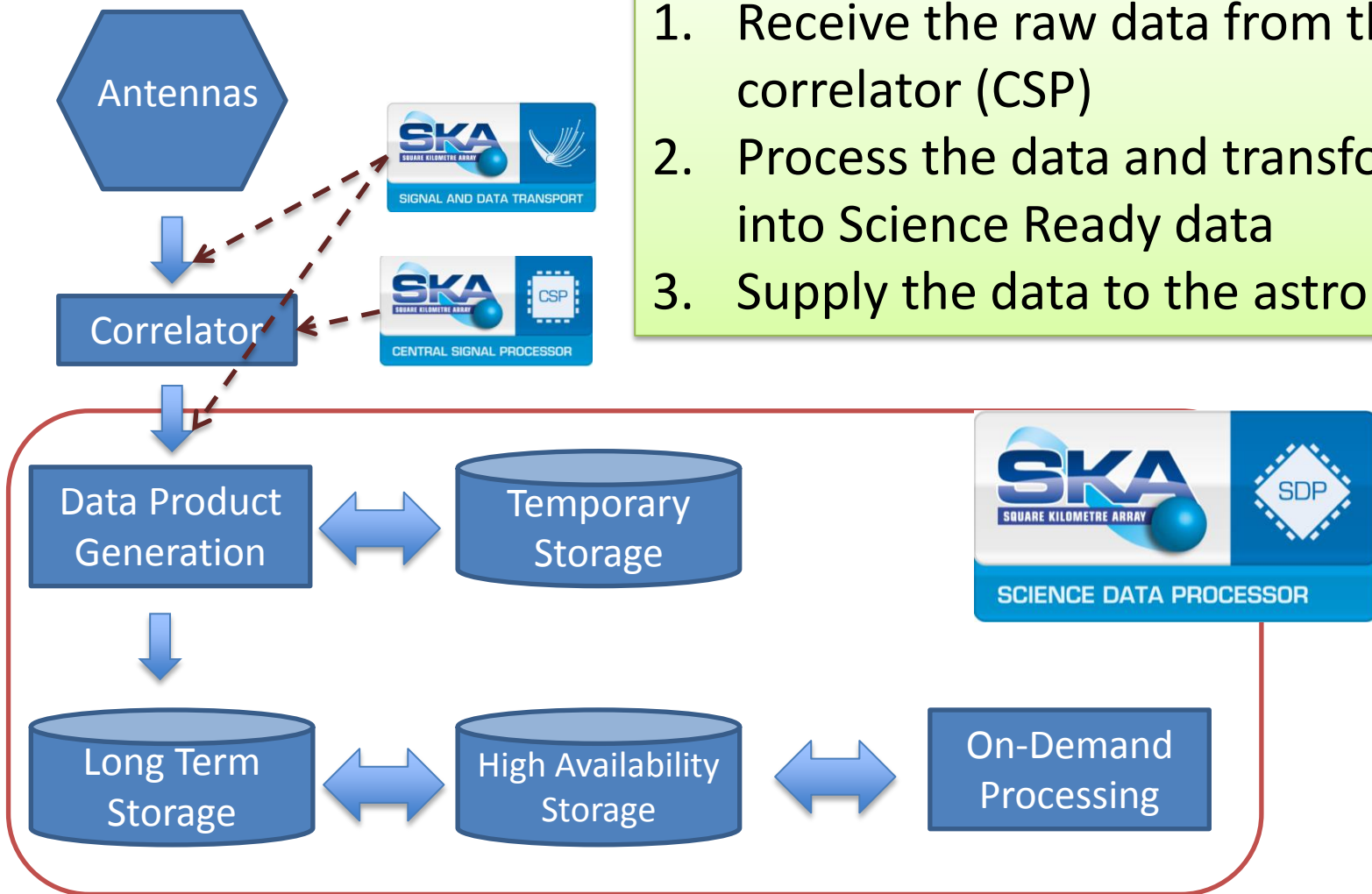
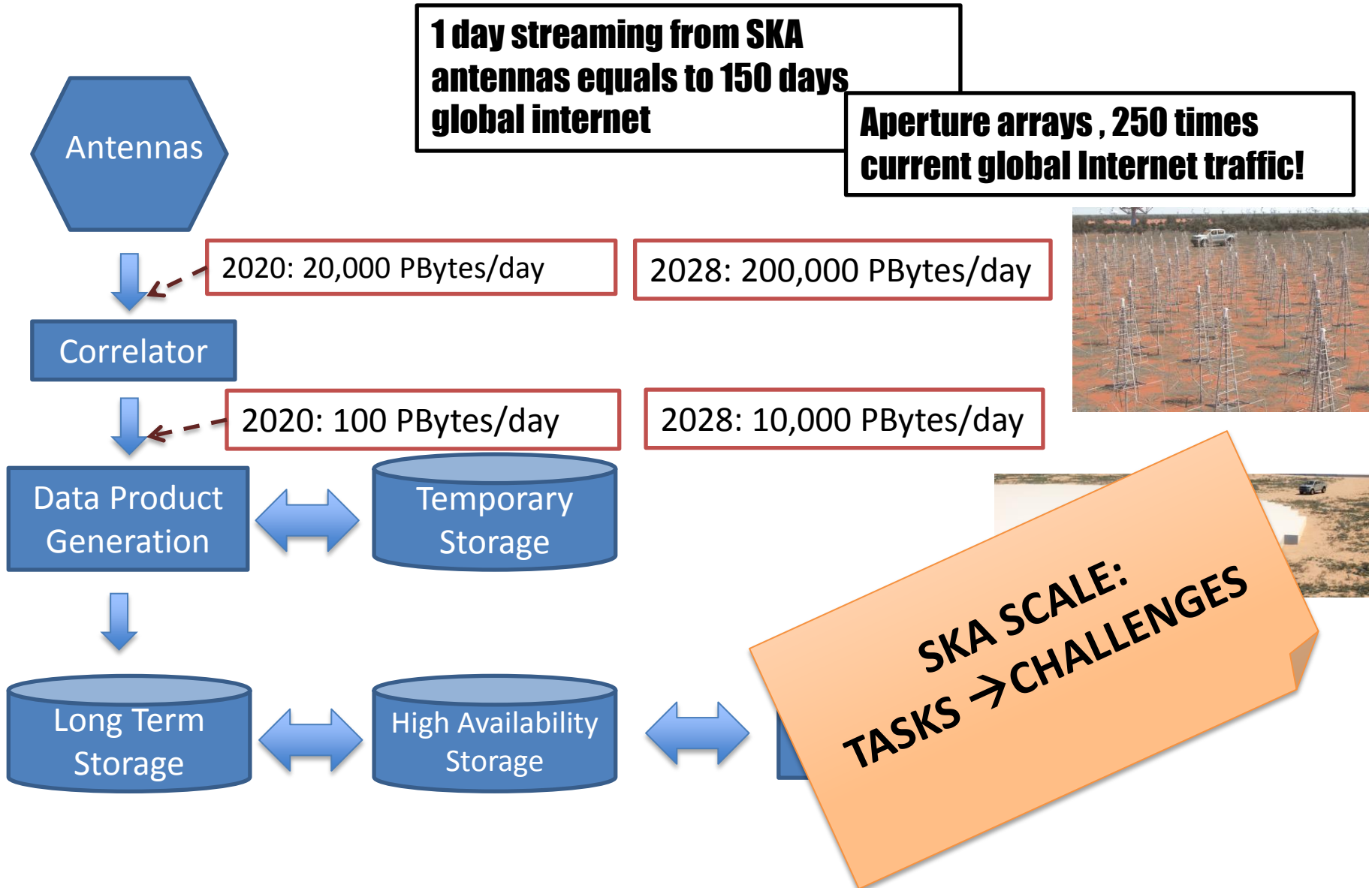


The Science Data Processor (SDP) SKA element in a nutshell

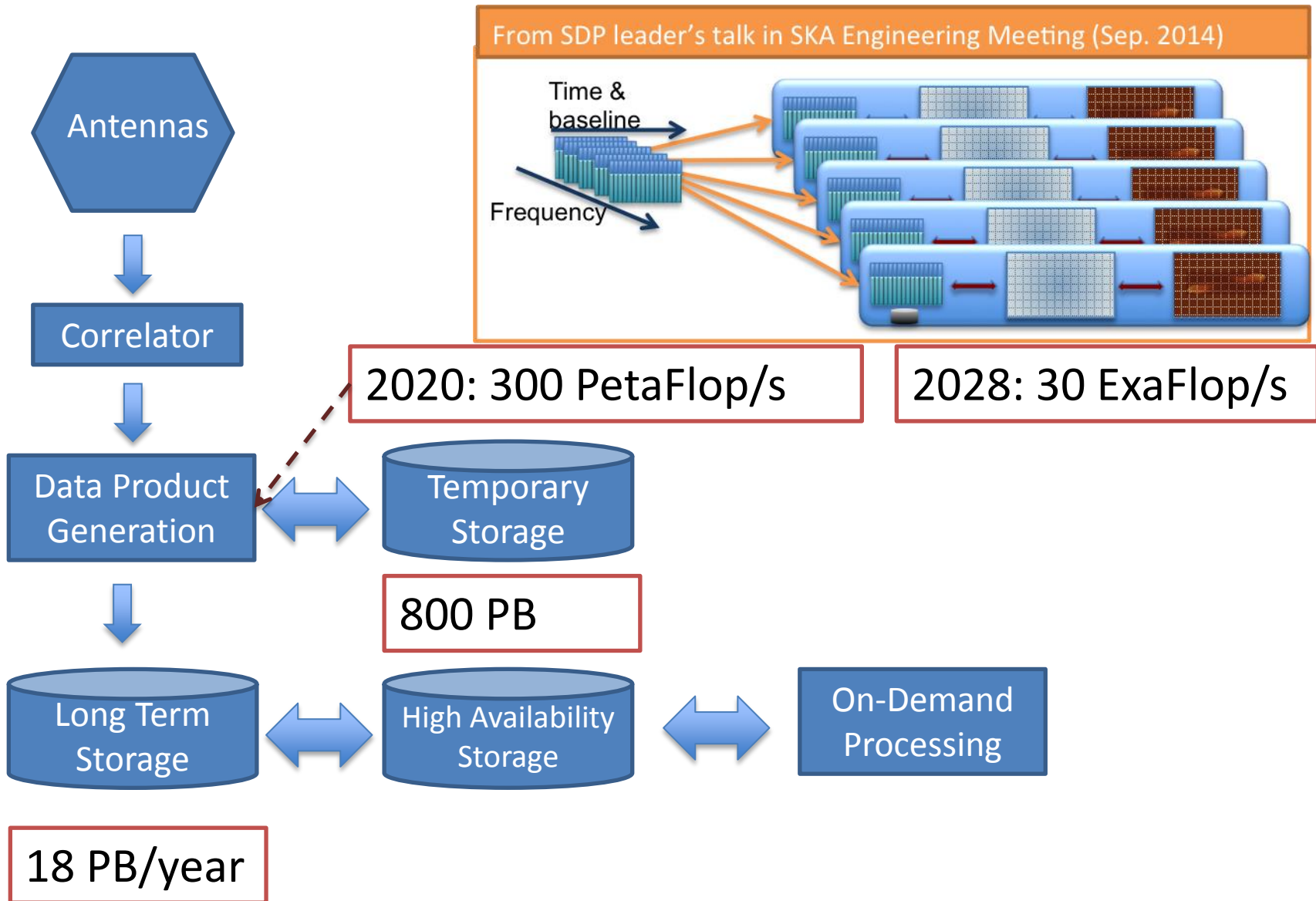
1. Receive the raw data from the correlator (CSP)
2. Process the data and transform them into Science Ready data
3. Supply the data to the astronomers



1. Receiving the data



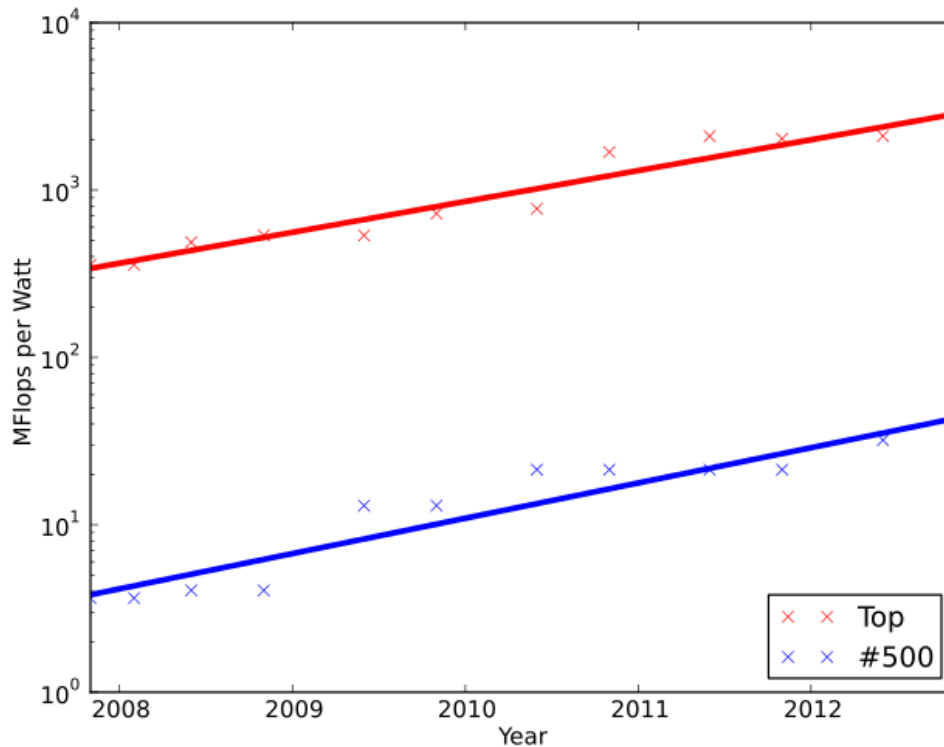
2. Generating Science Ready Data



2. Generating Science Ready Data

Power requirements

Green 500 list ©

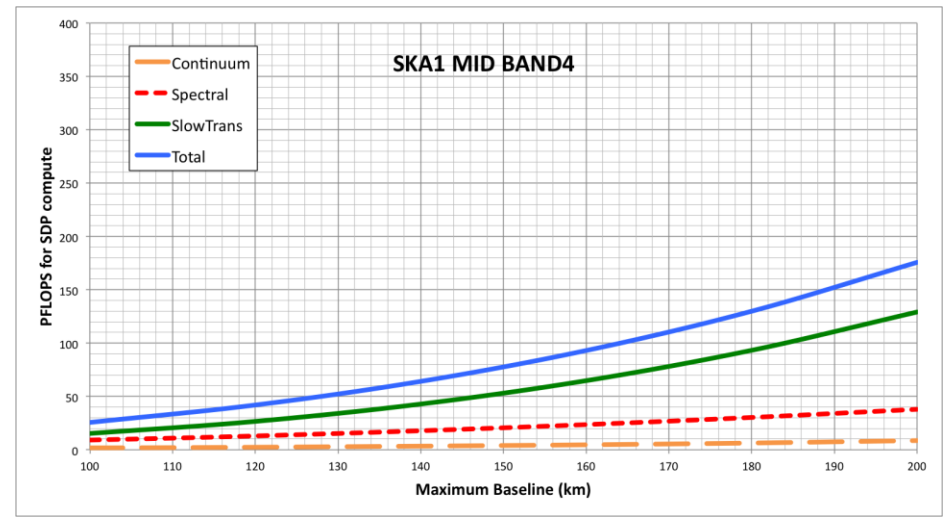
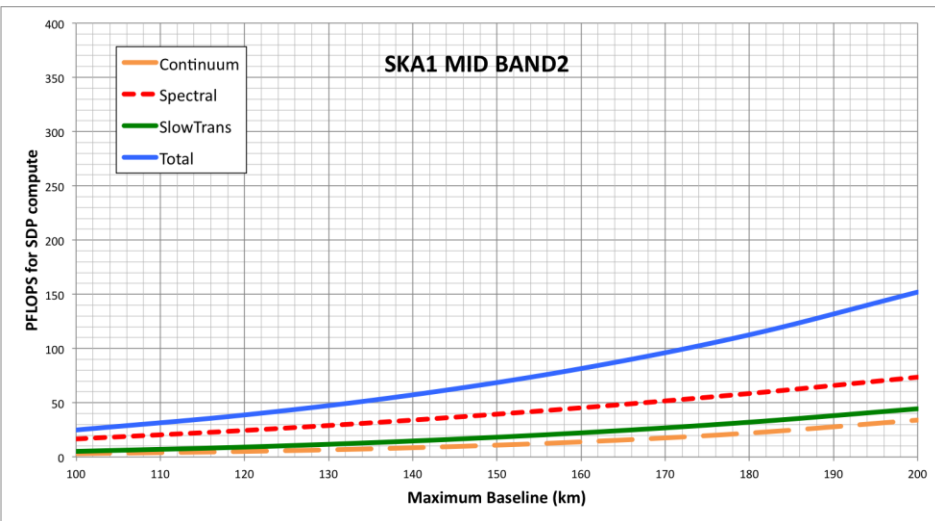
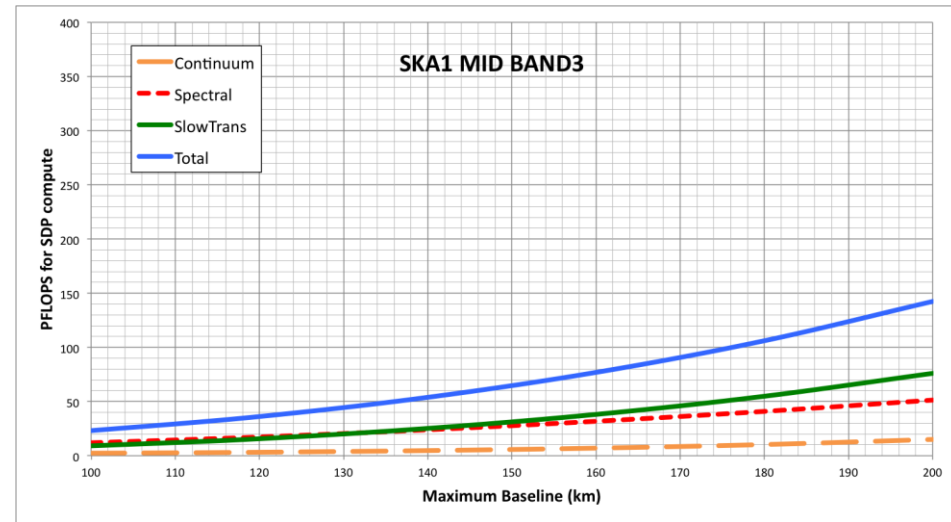
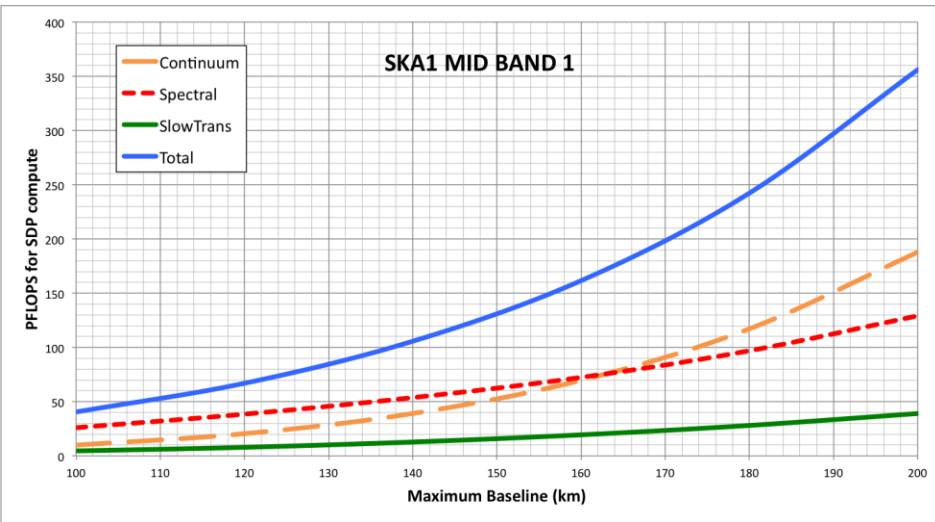


Projections from pathfinders and precursors:

→ SKA will be power limited

With renewable energy

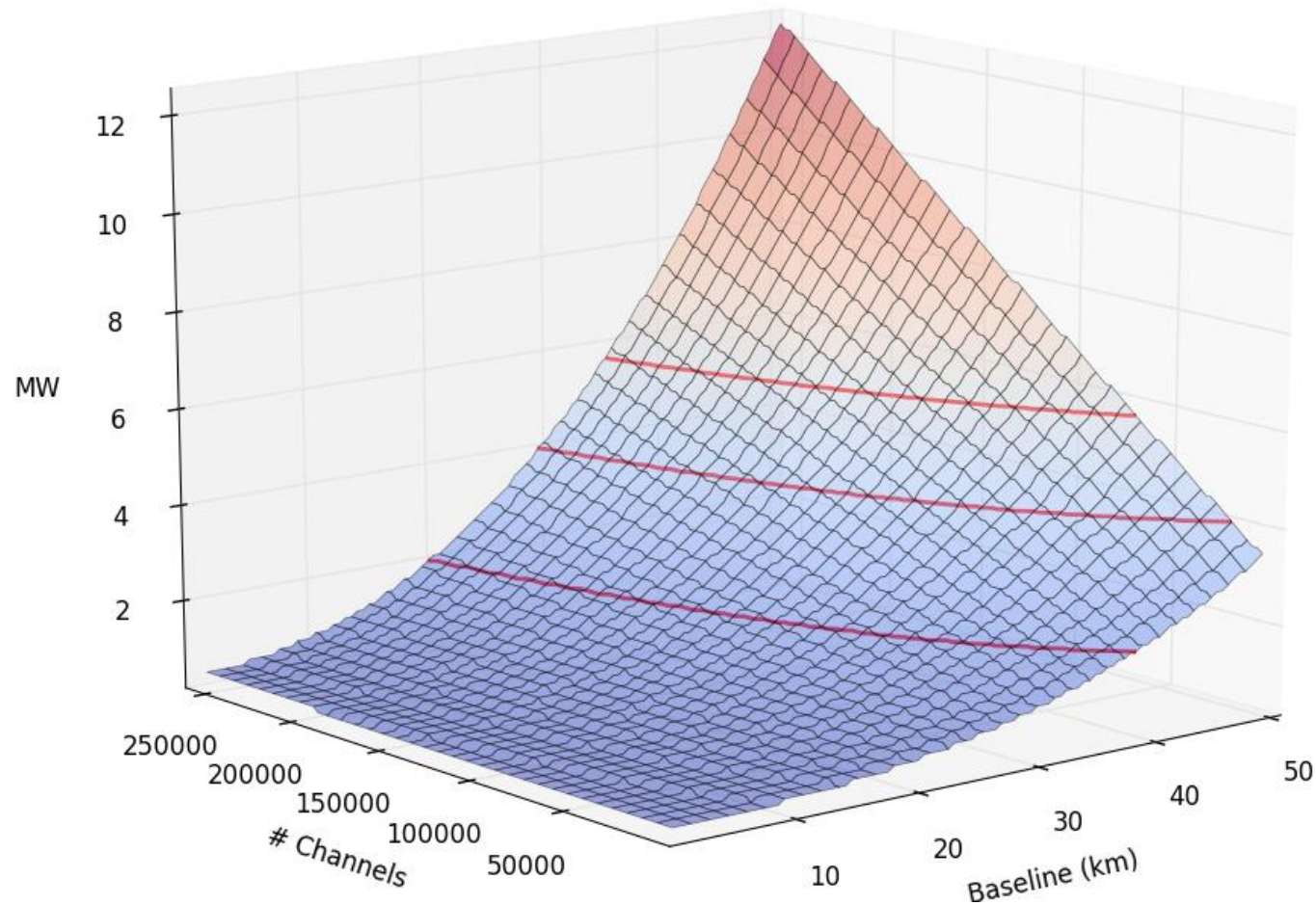
Most recent numbers



From SDP leader's talk in SKA Engineering Meeting (Sep. 2014)

Most recent numbers

Power (MW) vs baseline and # channels : SKA1-SUR



From SDP leader's talk in SKA Engineering Meeting (Sep. 2014)

Distributing efficiently the data and metadata among the scientific community

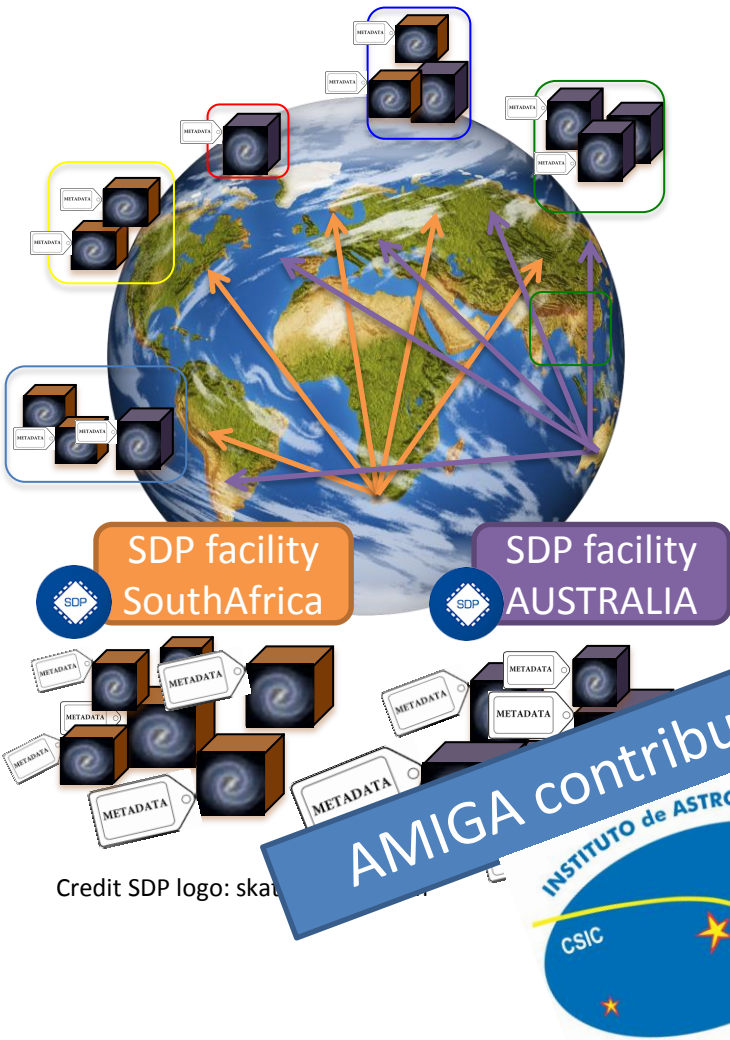
The success of SKA depends on the extraction of scientifically relevant information from huge data volumes

- Access/analyse/visualize **exascale** data
- Share **knowledge**:
 - Package the scientific method
 - Distribute it among the community

The way the SDP will distribute the data will be the first foundation stone

*A disruptive change in the methodology
required
e-Science*

Efficient distribution of the data and metadata among the scientific community



- One SDP facility per location for data processing and storage.
- Resources from different institutions storing separate data sets (Regional Centres).

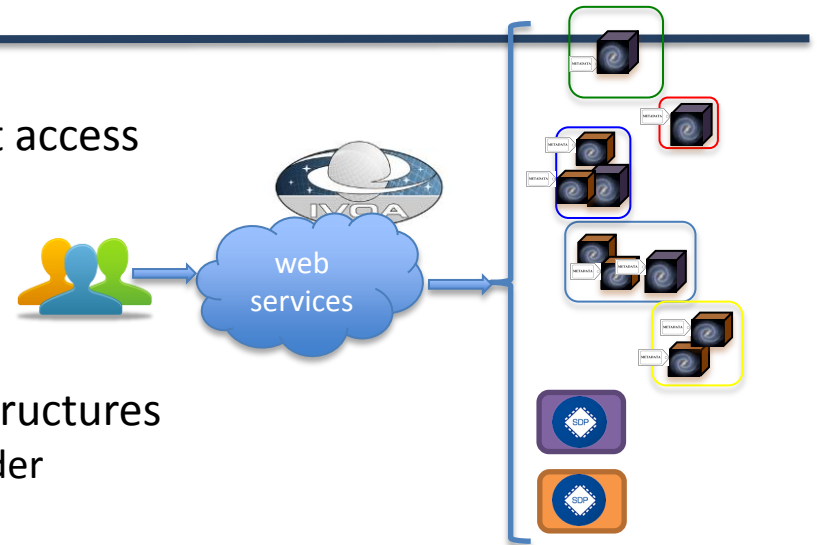
Big datasets distributed in a heterogeneous computing infrastructure along the world

Efficient distribution of the data and metadata among scientific community

Credit SDP logo: skat

AMIGA contribution to the SDP

- Provide the astronomers with a transparent access to the data
- Characterize SDP data and processes:
 - For smart data distribution
 - For users: data provenance
- Evaluate the suitability of computing infrastructures
 - benchmarks based in LOFAR, a SKA pathfinder



COLLABORATIONS:

- **AMIGA4GAS , AMIGA for GTC, ALMA and SKA pathfinder** (AYA national project)
 - <http://amiga.iaa.es/p/263-federated-computing.htm>
 - BSC (Barcelona Supercomputing Center)
 - FCSCCL (Fundacion Supercomputacion Castilla y Leon)
- **AMIGA5: gas in and around galaxies. Scientific and technological preparation for the SKA.** (AYA national project)
 - FCSCCL
 - UPM (Universidad Politécnica de Madrid)
 - UGR (Universidad de Granada)



Thanks
