

Focus Sessions on:
***“Interoperability of data from
major astronomy projects”***

Mark Allen

& Focus Session Organising Committee:

Kai Polsterer, Bruno Merin, David Ciardi, Patricia Whitelock, Fabio Pasian, Pepi Fabbiano, Bruce Berriman, Chenzhou Cui, Enrique Solano, Christophe Arviset, Matthew Graham, Pat Dowler, Janet Evans



Engaging major astronomy projects

- VO = framework for efficient and interoperable access to astronomical data
-  IVOA is an alliance of worldwide VO projects who develop the required standards
- IVOA making dedicated effort to encourage participation of major astronomy projects

Focus Sessions

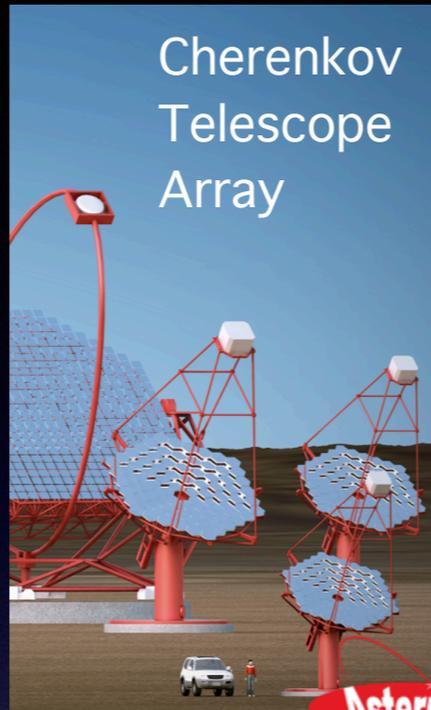
The identification of **use cases and requirements** of major astronomy projects for interoperability of their data

- Discussion of VO technologies in the **priority** areas of multi-dimensional, and time domain data
- What **practical measures** can be undertaken to facilitate the use of IVOA standards, and to ensure their relevance to major astronomy projects
- Fostering major astronomy projects to become **'participants' rather than 'customers'** of the VO

LSST



Large Synoptic Survey



Cherenkov Telescope Array



Square Kilometre Array



Five-hundred-meter Aperture Spherical Telescope (FAST)



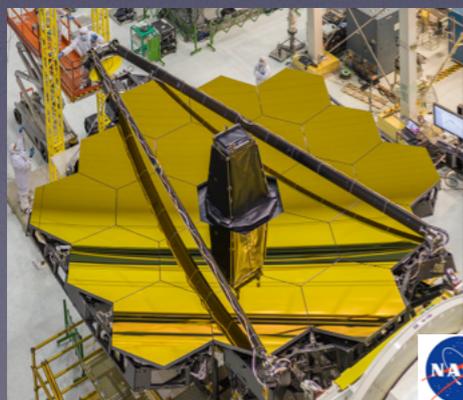
FOCUS SESSIONS



ASKAP



European Gravitational Observatory, EGO/VIRGO



JWST



Gaia & Euclid



Session	Speaker	Title
Tuesday May 10		
Session 5	Session chair: Mark Allen	
9h00 - 9h10	Introduction to the Focus Sessions	Mark Allen
9h10 - 9h30	Introduction to the VO standards process	Matthew Graham
9h30 - 10h00	SKA South Africa & MeerKAT	Russ Taylor
10h00 - 10h30	LSST	David Ciardi
Session 6	Session chair: Pepi Fabbiano	
11h00 - 11h20	ASTERICS - CTA: the Cherenkov Telescope Array	Mathieu Servillat
11h20 - 11h50	ASKAP	Jessica Chapman
11h50 - 12h20	FAST	Prof. Ming Zhu
12h20 - 12h30	Discussion	All
Wednesday May 11		
Session 9	Session Chair: K. Polsterer	
9h00 - 9h20	ESA Euclid and Gaia	Bruno Merin
9h20 - 9h40	JWST	Tom Donaldson
9h40 - 10h00	ASTERICS - EGO/VIRGO/Gravitational Waves	Giuseppe Greco
10h00 -10h30	Discussion	All
Session 10	Splinter Discussions	
11h00 -12h30		
	Focused meetings with invited speakers on identification of large project needs	
	Meeting/discussions to identify “minimal” requirements for IVOA standards	

Splinter Discussion Session

- Wednesday 11h-12h30
- Format of session in response to topics raised
- Splinter meetings with Invited Speakers
 - ***The identification of use cases and requirements of major astronomy projects for interoperability of their data***



Science Priority Areas

Multi-dimensional Data

Radio astronomy, Integral Field Spectroscopy, high energy, polarization, simulation, data mining datasets + ...

Time Domain Astronomy

Time Series, light curves, transient event reports, +...

- Need to ensure that these are accessible and useable within the VO

Multi-d Data Status

- A long road to a set of standards to support access to Multi-dimensional data
 - *IVOA first response to multi-d data*
 - *Finish what we started, and move onto next steps*
- Demonstrations in sessions this week
- Guided by use cases and requirements

Minimal requirements

- **Data Discovery (Query)**
 - A service shall be able to receive queries regarding its data collection(s) from a client, with the client placing one or more of the following constraints:
 - RA,Dec
 - Frequency/wavelength
 - Polarization states
 - Spatial size
 - Angular resolution
 - Integration time
 - Time of observation
 - A service shall return to the client a list of observations, and the corresponding metadata for each observation, meeting the user-imposed constraints. In the event that the user places no constraints, the entire list of observations, and the corresponding metadata for each data set, shall be returned. In the event that no data meet the user's constraints, the service shall indicate the absence of any matches.
- **Data Access**
 - Once a user has the list of observations that satisfy the constraints, they select all or a subset of the observations and:
 - Download the complete science data for each of the selected observations (the service shall return the complete multi-dimensional science data and metadata for each selected observation) or;
 - Download simple cutouts of the science data for each of the selected observations (the service shall be able to extract and return a user-specified subset of the complete multi-dimensional science data and metadata for each selected observation).
- **Simple Cutout**
 - For a simple cutout, the user-specified subset is restricted to be a contiguous interval within each dimension of the multi-dimensional science data. The user should **not** be allowed to specify subsets with "gaps" or resampling or anything like that.
 - Spatial: (a coordinate and a radius)
 - Energy: one interval (from energy1 to energy2)
 - Time: one interval (from time1 to time2)
 - Polarization: a list

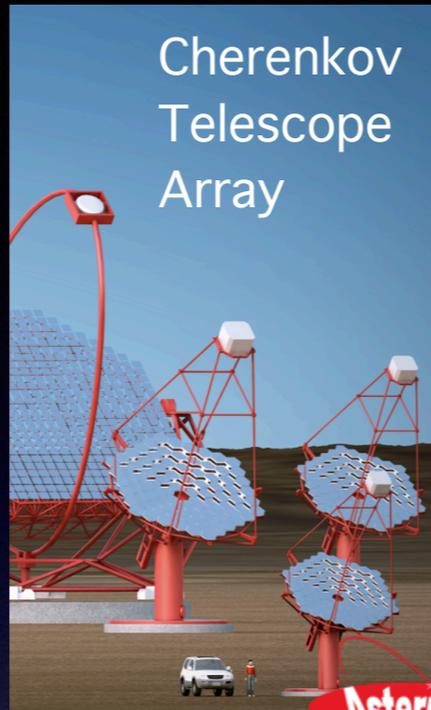
Time Domain Status

- Initial Time Domain Focus Session May 2013
 - LSST, Radio Transients (ASKAP, Meerkat,..), CoRoT, Kepler
- Important activity in Time Domain community (Transient Universe etc.), but...
 - ▶ Renewed effort in IVOA needed: Time Series, Scalability of VOEvent - in coordination with relevant projects
 - ▶ Focus Sessions and TDIG discussions at this meeting

LSST



Large Synoptic Survey

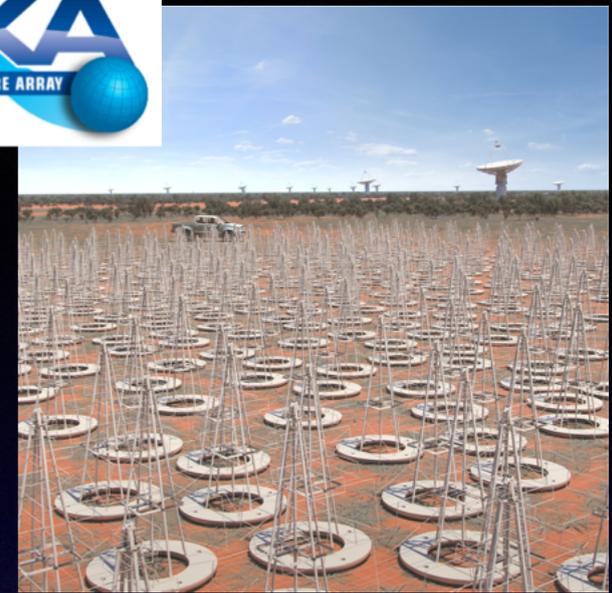


Cherenkov Telescope Array

Asterics
Astronomy 2030 & Research Infrastructure Cluster



SKA
SQUARE KILOMETRE ARRAY



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FAST



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IVOA

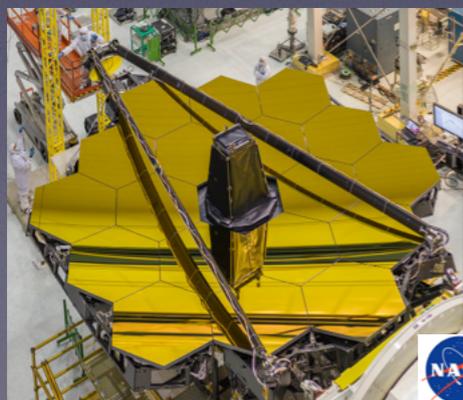
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CSIRO

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JWST

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