Multi-D Data Access Discussion Notes

How to define use cases?

- Multi-d : what are the dimensions?

- neutrinos - event by event, types of neutrino (semantics), location in sky, time - every neutrino is an event, neutrino energy + uncertainty
- CTA: event provenance. Works with collections of events
- grav waves, instead of location: probability sky maps, time. [Query for things inside the map]
- poln. , extra dimension is a vector
- X-ray - can be considered as events, but also combined together as cube (CTA similarities)

Discovery

- object based - target in obstap/siav2
- registry keywords - in registry discussion
- time, location and probability map
- managing sparse data coverage
- sensible way to describe what a service is (high energy data cubes,)- filtering discovery
(- provenance: real implementation needed)

Access
formats - fits WCS, is FITS good enough?

Interoperability/Analysis
- done before observing to predict what to expect in radio, as well as after during analysis
- intrinsic/already existing interop. of tools and formats
- CTA will have high level data, should be accessible and useable as an SDSS image. 3 or 4 different spectra for a given observation. (provenance important)
TOOLS - much can be coded into the tools

Are the data models appropriate to ESFRI+pathfinder projects?
- CTA has tested many data models. Helped by working with people inside VO, needed to build own expertise in VO standards

How to work with cubes/multi-d
Are there common tools for dealing with multi-d?

LOFAR - KARMA view/zoom/change 3rd axis/change view, extract spectra
also DS9, kviz
VisIVO -
Skymap viewer
ESO - MUSE etc. ESO not dev. software for analysis of cubes, except casa-viewer, making most of already avail tools
(characterising the quality (S/N pixel-to-pixel quality) of the data is important - and to propoagate this info) [HDU classes used to link info]

For tomorrow:
Data rights,proprietary access (Auth+Athen.)

- access control per event?

What is the role/place of VO standards in projects?

Existing interfaces - do you already have interfaces? Are there good examples?

What kind of information do you need?

- navigating data models can be difficult
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- Data publishing tutorials/training event can be a place where real needs/issues can become apparent
- Publishing event - can include different approaches, including use of publication tools, and explanations of general approaches to implementing standards
- this forum to define requirements

- bringing lists of ideas and codes to small focused meetings (visits) could be useful

ASTERICS strategy - Tech Fora to prepare for IVOA input