ObsTAP at the HEASARC

<Hat>NASA/HEASARC</Hat>

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The big picture

Overall...

- ObsTAP addresses major limitations of VO standards for accessing HEASARC data.
- Allows access to all major astronomical data sets held by HEASARC.
- Powerful and generic replacement for specialized format (SIA,SSA) protocols which do not match HEASARC data well.
- Hoped for straightforward transition between existing HEASARC tables and ObsTAP.

... but the devil's in the details.

Concerns

- HEASARC normally has observation->directory for data products.
  - ROSAT, ASCA,XMM,HETE2,Chandra,Swift,Suzaku,…
- But seems to be ProductsTAP not ObsTAP
  - Unclear how to point to observations as a whole.
    - Standard way for getting HEA data
    - Limited usefulness of images/spectra in isolation.
  - Substantially increases cost of creating and maintaining required schema.
    - HEASARC has ~30 missions x 3 instruments/mission x ~10 products/instrument
    - Order of magnitude more types to be defined in some standardized format.
    - Metadata needed for product definition is not currently centralized.
    - May lead users to 'wrong' products
- Inflexible structure
  - Domain/Level spanning observations
  - No null mandate
    - Increases cost of tools to populate ObsTAP tables and lessens scope of data that can be described.
- ObsTAP could be harder to implement and possibly less useful in disseminating our data.

Comments

- Searches based on size/resolution (in any dimensionality)
- Use of a geometry type field requires implementation of geometry support in TAP which may delay implementation of ObsTAP.
  - Existence of geometry fields triggers other TAP implementation requirements
  - Standard cone or box (with reals) might be better cost/benefit.
  - Clear constraints on what geometry support is required would be helpful in any case
- Support for pointers to directory URLs would be desirable. [Not distinguishable using Mime-type]

Summary

- ObsTAP is a discovery protocol but does not allow 'automated' context-free distributed data analysis.
  - This is fine!
  - Linked data will differ even when ObsTAP description is similar.
- What would make it easier for HEASARC to provide data:
  - Unambiguous support for pointers to Observations
  - Nulls
  - URLs -> directories (futzable)
  - Clear description of what is to be done when multiple values of a controlled vocabulary are applicable.
    - XMM OM image with optical and UV data in single file.
  - Not having to worry about geometry column in DB (probably more of an issue to some other sites).