Data Model Working Group

Opening Session

Chair: Mark Cresitello-Dittmar
Vice-Chair: Mathieu Servillat

Roadmap

- **Primary:**

  - Spectrum 1.2 RFE
    - Complete RFC process

  - Transform 1.0
    - Prepare for RFC

  - ObsCore Extension for Radio
    - Resolve open issues, prep. for RFC

- **Secondary:**

  - Mango 1.0
    - Refine content and implementations

  - Dataset 1.0
    - Update model per Bologna interop

  - Modeling High Energy Datasets
    - Refine Note; support HEIG formation

  - One step Provenance
    - Continue work on Note

- **Other:**

  - VODML Toolkit
    - Ongoing development/expansion

  - NDCube 1.0
    - Explore workflow cases/ HE compat.

  - Characterisation 2.0
    - VO-DML compliant version

  - Field of View

  - CAOM
    - Explore place in model ecosystem

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- **Bonus:**

- VODML Enhancements

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🟢 Affected by and inspired the topic of the Joint Session

DM Session 1: High Energy focus

DM 1 - Tuesday, May 21, 14:00 -- 15:30, C122		
Speaker	**Time**	**Title**
Mathieu Servillat	10' + 2'	**Overview based on the Note prepared by the HE group** Following earlier discussions over severals years, a High Energy group formed at IVOA [1] in 2023, and started to write an IVOA Note [2] to explain the specificities of High Energy Data and potential objectives for a High Energy Interest Group within IVOA. [1] https://wiki.ivoa.net/twiki/bin/view/IVOA/HEGroup [2] https://github.com/ivoa/HighEnergyDataNote
Ian Evans	15' + 3'	**Why High Energy Data Are Different** We review high energy astrophysics data, using Chandra X-ray Observatory data as an example. Some key differences in calibration and data analysis approaches that are used when handling energetic photons are discussed, together with the implications for data models. We also consider more broad data analysis techniques that are used routinely by Chandra observers and in the Chandra Source Catalog (and that are being used ever more widely throughout the astronomical community), and why measurement models must be expanded to handle them.
Bruno Khelifi and Mathieu Servillat	10' + 2'	**High Energy Data in Gamma-ray Astronomy** Extending on the previous presentation on X-ray data, we stress additional specificities of Gamma-ray astronomy data, particularly for Cherenkov astronomy. The Gammapy project and VODF (VHE Open Data Format) initiative will be presented to expose those specificities.
Mathieu Servillat and all	15' + 3'	**Experience building ObsCore service for HE data** Photon counting in High Energy Astronomy leads to the generation of lists of events used as a starting point for further data analysis. Though ObsCore can expose data product of type "event", such services are virtually non-existent in the VO. We initiate the discussion on how ObsCore can be used for High Energy event-lists based on the current service hosted at Paris Astronomical Data Centre exposing the H.E.S.S. public data release.
Mark Cresitello-Dittmar	15' + 3'	**Data models: compatibility with High Energy data** A brief review of the data models supporting high energy data (eg: event lists), and possible paths for enabling use cases with more complex data products and workflows
		Open Discussion

DM Session 2: Ongoing Work

DM 2 - Wednesday, May 22, 11:00--12:30, C122		
Speaker	Time	Title
Paul Harrison	15' + 3'	**!VODML enhancement requests and Data Model Development** A series of extensions to VO-DML will be presented, with a roadmap to VO-DML 1.2 - all the proposed new features of VO-DML 1.1 (and some of 1.2) have been tested withing the VODML tooling for some time now. Some of the new features of the VO-DML tooling such as JSON schema will also be presented. In addition some ideas for a different Data Model roadmap will be presented.
Laurent Michel	15' + 3'	**MANGO, a Model for Annotating Generic Objects** Mango is a DataModel proposal designed to represent open-ended collections of complex properties such as we find in data tables. We consider a property to be complex if it is built with multiple parameters, possibly associated with complex errors, flags or even other properties. The purpose of Mango is to facilitate the processing of data tables property by property rather than column by column, which requires clients to infer the property components. The properties supported by Mango can be modeled by classes imported from other data models (Meas/Coords, photDM …) or by built-in classes.
François Bonnarel	15' + 3'	**!FoV data model: integrating a rendering class** (abstract)
Mathieu Servillat	15' + 3'	**One-step Provenance updates** One-step Provenance proposes a simplified structure to describe the provenance of an entity as a succession of steps, based on the IVOA Provenance Data Model. We will present the last updates on the propose data model, as well as improvement of the voprov Python package to handle this concept.

Joint Session

DM/DAL/APPS - Thursday, May 23, 16:00 -- 17:30, C122		
Speaker	**Time**	**Title**
Mark Cresitello-Dittmar	15'	**Introduction** This will primarily be a discussion session to consider options for how Data Models are to be delivered and consumed by clients (DAL, APPS) with vastly different requirements. The IVOA Data Models to date have been focused primarily on Data Discovery and Access via interactions with database tables. The results of these are served by simple VOTables and/or DataLink to native format files. More recent Data Model work (Provenance, Cube family, Mango) have been directed to more complex use cases and are consequently, more detailed than is desired to serve simple use cases directly. In addition, we have the prospect of integrating the Common Archive Observation Model (CAOM) into our Data Model suite, which has significant concept overlap with existing models, but serves its target clients very well. How do we develop/present models rich enough to serve the most complex cases AND serve clients who don't require that level of flexibility WITHOUT creating a maze of data models with overlapping content? Bring your ideas!
Laurent Michel	10'	**Epic Propagation project: case in point** (abstract)
		Open Discussion

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Define an official strategy for developing data models that are rich enough to satisfy the most complex usage threads AND serve less complex threads *at the appropriate level* without creating a maze of data models with overlapping content