Time series Data model
Current Status

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Interop MeetingNov 2018, College Park , M

Time Series Data Model

- **Merged views on the data model**

  - Face to face meeting in Strasbourg , July 2018:

    - Mark CD, Ada N., Laurent M. , François B. , Mireille L.

  - Bring the various trends together, reuse the building blocks of IVOA models

  - Define the way the classes are re used from one model part to the other.

  - Evaluate on the GAIA use-case on real datasets examples

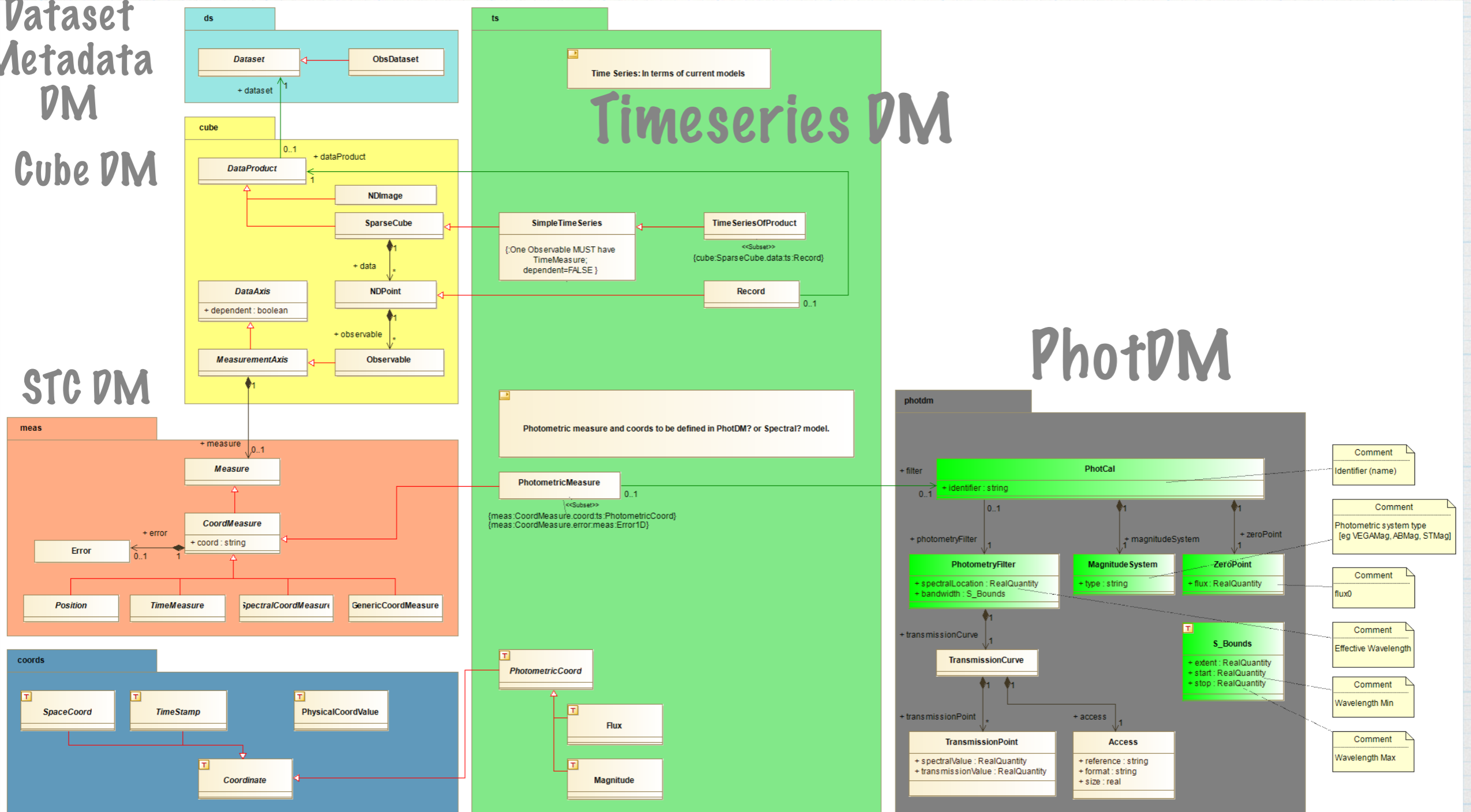 - Extend for time series of datasets (spectra, etc)

Design agreement

- Agreement for re-using

  - **Dataset Metadata** definitions /Obscore specification definition :

    - A time series is a dataset with data-productype = timeseries,

    - reuse Curation and DataID metadata

  - **Cube data model for storing data**

    - SparseCube , Measurement axes, Coordinates and Measures from STC

  - **Characterisation DM** metadata $\longrightarrow$ DataDiscovery

    - Temporal, Spatial, Spectral, Observable (Flux, Radial Velocity) Axis coverage, sampling, support

  - **Photometry DM** for binding the Photometric measures

    - PhotCal, Zeropoint, transmission Curve , etc

  - **Translation VO-DML needed as well for Char & Phot**

Design strategy

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- Import classes from existing models when possible

    - A simple time series is Cube:SparseCube

        - Inherits from Cube::dataDataproduct which is a datasetMetadata::DataSet

    - Contains a collection of NDPoint

    - Each point contains a TimeMeasure (subsetting for TS:NDPoint) and one or more Observables

        - An Observable is either a STC:Measure Class inside or a PhotometricMeasure

        - A photometricMeasure can be bound to calibration information and can point to a PhotCal object from PhotDM (if calibrated)

    - The values representing the measures are defined in STC:Coords and TS:PhotCoord as either Flux or Magnitude

- Cardinalities & groupings of measures

    - there can be (T, f1, f2, f3) 3 synchronized flux measures

    - (T, F1, T+d1, f2, T+d2, f3) shifted time stamps

- Observable can be also a full dataset : spectrum, image, data cube , etc.

Documents available

- **VODML XML and documentation is available**

  https://volute.g-vo.org/svn/trunk/projects/time-domain/time-series/model

- **Need more filling in the descriptions of attributes**

- **Description about the import classes to be written**

  - We are working on it

Explore various tagging for serialization

- **Examples available**

  http://volute.g-vo.org/svn/trunk/projects/time-domain/time-series/note/DATA/

- **UTypes mapping**

- **VODML-Lite mapping** with various groups of measures

Explore various tagging for serialization

- **Gaia Examples available**

  http://volute.g-vo.org/svn/trunk/projects/time-domain/time-series/note/DATA/

- **UTypes mapping**

- **VODML-Lite mapping with various groups of measures**

- **On going tests for other data sets**

Documents

- Details on the discussions

http://wiki.ivoa.net/internal/IVOA/IvoaVOEvent/Strasbourg-17-20July2018.pdf

- Writing TimeSeries Working Draft to start from the existing TimeSeries Note and from the model summary