Time Domain Interest Group

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Priorities in Time Domain

- Review status of recommendation level and working draft level documents of relevance for time domain, and decide on priorities based on current status of the field.

- Upcoming surveys (LSST, LIGO) and the increase number of transient alerts across wavelengths (including high energy transients, of relevance in multi-messenger science), as well as the emergence of spectral time-domain surveys, such SDSS-V, set the following priorities:

Priorities in Time Domain

- VOEvent 2.1 working draft: new version coordinated by DAL, but the TD IG should follow and read the draft to provide feedback. The current, stable version of VOEvent is at https://www.ivoa.net/documents/VOEvent/20110711/

- Evaluate if new version of VOEvent requires updates to the VOEvent Transport Protocol => Protocol for publishing VOEvent => https://www.ivoa.net/documents/VOEventTransport/20170320/index.html

- Pick up discussion on Time Series Cube Data Model (2019), to get status, establish if it leads to a recommendation, etc. Does the datacube only have a time dimension, or also a spectral dimension? Of relevance for upcoming spectral time domain surveys. We need to ensue that it also fits high energy data (i.e. event files) => https://www.ivoa.net/documents/Notes/CubeDM/20190318/index.html

TDIG Session Agenda

Robert Nikutta	**How science platforms can help bring together time domain astronomy needs and capabilities** Astronomical science platforms can serve as the glue between a multitude of isolated efforts in alert streaming and filtering, planning and triggering of follow-up observations, connection to archival data, access to data reduction and classifier resources, with the researcher in the middle of it. I will discuss some developments and future plans with NOIRLab's systems as an example.
Vincenzo Galluzzi	**Pulsar and FRB Radio Data Discovery and Access: an update from INAF and RIG activities** The INAF radio archive recently completed a new data release for time-domain observations (pulsars and FRBs) gathered with the Sardinia Radio Telescope: after a quick recap about how the different data formats are being handled, I will introduce the discussion about the draft of the IVOA Note "Pulsar and FRB Radio Data Discovery and Access" produced within the RIG. Thus, I will focus on the mapping of the different data formats (e.g. PSRFITS/PSRCHIVE and FILTERBANK) onto ObsCore DM and summarize the proposal of an extension table dedicated to time-domain data. Also, issues like the identification of the data_product_type and o_ucd are presented and addressed to the relevant IVOA Working Groups.
Baptiste Cecconi	**Can HAPI also become an IVOA Standard for Delivering Time Series Data?** A standardization effort in the Heliophysics community has results in the creation of a specification for accessing time series data. The Heliophysics Application Programmer's Interface (HAPI) standard tries hard to stay away from any Heliophysics-specific requirements, so it is useful in any context where there is tabular data with consistent records over time. The interface itself is very simple and was created to be a kind of lowest common denominator representation of what was already being done. It could be useful for astronomers for two reasons: 1 it is now a good way to uniformly access many datasets and servers in Heliophysics, so people outside the field do not need to learn any data-center idiosyncrasies. It could also be useful to the astronomy community for its own use as a way to simply and efficiently deliver time series data products. We will describe basic features of HAPI for people in IVOA to help analyze the potential usefulness of HAPI for astronomy.
Gregory Dubois-Feldsmann	**IVOA standards and time-domain searches**