

□ Discovery and Access

- Data Discovery: 3 ways
 - **Source driven:** TAP or SCS → URL → How do we put a standard tag on this URL? Utype, Link, DataLink (Service descriptor or resource) ?
 - **ObsCore driven:** do we need to add more fields?
 - **Physical content driven:** how do we describe which metadata? joint ObsCore + physical_metadata_table
- TimeSeries representation and access:
 - Looks like there is a consensus! Time needs to be properly described: Time Scale, ref. position, representation (JD, MJD, Offset, no HJD)
 - Data Model (tomorrow)
 - Single URL retrieval not enough: SODA-like to generate the actual TimeSeries

“SODA is a low-level data access capability or server side data processing that can act upon the data files, performing various kinds of operations: filtering/subsection, transformations, pixel operations, and applying functions to the data.”

□ DAL as a possible solution

- Obscore:
 - Characterisation of time from TimeSeries DM
 - Set a new TimeSeries extension table
 - **Endorsed note or real standard?**
- Representation:
 - Requires modelling and serialisation (DM task)
- TimeSeries generation:
 - Add a *DataProductType* attribute to SODA for TimeSeries
 - Add resampling parameters to SODA interface
 - **Endorsed note or new version of standard?**
- SIAV2 (param-based) discovery:
 - Obscore-like attributes in the SIAV2 query params
 - Virtual data discovery capability
 - **Endorsed note or new version of standard?**

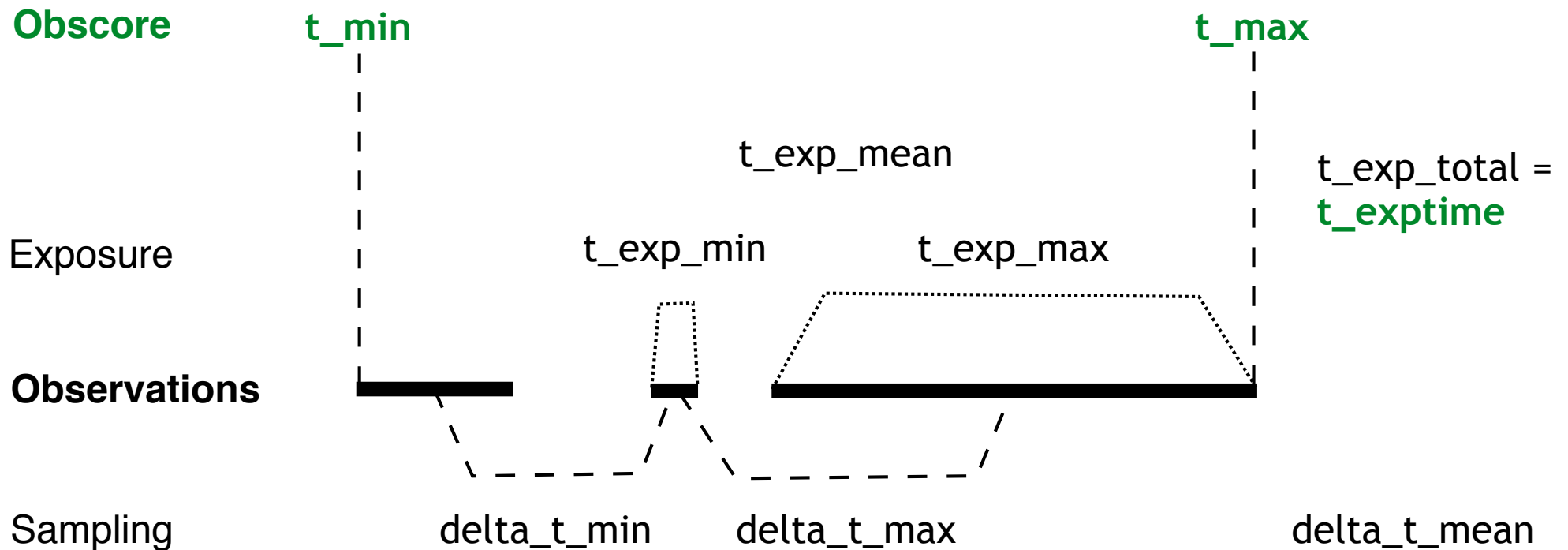
☐ Metadata needed? for discovery

- **Spatial coordinate system** ✓
- **Time coordinate system** (scale, ref.position, representation) MJD but not associated to a fixed ref nor scale) ✗
- **Time, spectral, space and polarisation characterisation and statistics**
 - Raw/mean position
 - raw bounding limits (t_{\min} , t_{\max})
 - standard deviation
- **Time sampling characterisation and statistics:**
 - Mean sampling step,
 - Sampling step limits,
 - sampling step standard deviation,
 - total exposure time
- **Exposure time**
 - Mean total exposure time (t_{exptime})
 - mean exposure time per step
 - min, max and standard deviation of exposure time per step
- **Characterisation on the time frequency axis:**
 - Periodograms are another representation of data
 - We can have period(s) for periodic data or variability
 - We can proceed to frequency analysis and provide coefficient and frequencies
 - Phase representation
- **Questions:** What are the dependent and independent quantities? what is the nature of the dependant quantities?

obs_collection	unitless	String	Name of the data collection
obs_id	unitless	String	Observation ID
obs_publisher_did	unitless	String	Dataset identifier given by the publisher
access_url	unitless	String	URL used to access (download) dataset
access_format	unitless	String	File content format (see in App. BB.5.2)
access_estsize	kbyte	integer	Estimated size of dataset in kilo bytes
target_name	unitless	String	Astronomical object observed, if any
s_ra	deg	double	Central right ascension, ICRS
s_dec	deg	double	Central declination, ICRS
s_fov	deg	double	Diameter (bounds) of the covered region
s_region	unitless	String	Sky region covered by the data product (expressed in ICRS frame)
s_xel1	unitless	integer	Number of elements along the first spatial axis
s_xel2	unitless	integer	Number of elements along the second spatial axis
s_resolution	arcsec	double	Spatial resolution of data as FWHM
t_min	d	double	Start time in MJD
t_max	d	double	Stop time in MJD
t_exptime	s	double	Total exposure time
t_resolution	s	double	Temporal resolution FWHM
t_xel	unitless	integer	Number of elements along the time axis
em_min	m	double	Start in spectral coordinates
em_max	m	double	Stop in spectral coordinates
em_res_power	unitless	double	Spectral resolving power
em_xel	unitless	integer	Number of elements along the spectral axis
o_ucd	unitless	String	UCD of observable (e.g. phot.flux.density, phot.count, etc.)
pol_states	unitless	String	List of polarization states or NULL if not applicable
pol_xel	unitless	integer	Number of polarization samples
facility_name	unitless	String	Name of the facility used for this observation
instrument_name	unitless	String	Name of the instrument used for this observation

Table 1. Mandatory fields of the Observation Core Components data model with their name, recommended units, data type and designation.

□ What do we have/need in Obscore for discovering time series data?



Number of observations t_{xel}

Time resolution (precision of the measurement) $t_{resolution}$

What kind of observations do I have? **photometry (light curves)**, spectra, images,...

□ Extension of Obscore?

Do we need an Obscore extension for TimeSeries?

Are t_min, t_max, t_exptime, t_resolution, t_xel enough?

- Do we need a **unique and standard** extension/modification?
 - Where do we put the limit to the fields we would like to add?
 - Properly defined time is a **must** — refer to A. Rots mail, A&A paper and STC2 doc
 - Add information on sampling? **Maybe**
 - Add information on exposure time? **Maybe**
 - Add what is varying with time? **Extend o_ucd value domain**
 - Physical properties — **I don't consider we need this**
 - A star or a binary system can have several periods (e.g. pulsation, spin and rotation)
 - Source dependant parameters (main classification, subclass, spectral type, activity index) —> problem of different classification methods —> Doesn't make sense
 - What was done for spatial coordinates? Obscore doesn't contain any information on the nature of the source. Is this now different? Aren't target_name, ra and dec enough?