

Work Package 7 - JRA2

Data Access Protocols and Data Models

WP7 Objectives

Taking into account requirements from the scientific users and the data centres, participate in the IVOA Working Groups for the definition of the IVOA standards and protocols for data access, data description and query language, beyond the present initial versions (“simple” protocols). Input will be given to the Data Access Layer, Data Models and VO Query Language IVOA Working Groups.


WP7 Description of Work

[...] Perform R&D studies for Data Access, Data Model and VObs Query Language protocols and standards in the context of the IVOA working groups.

- Studying the DAL, DM, VOQL standards. Assessing possible technologies to implement these standards*
- Participation to the IVOA WGs discussions, mail forum, teleconferences*
- Participation to writing the standards specifications document of these DAL, DM, VOQL*
- Participation to the IVOA Technical forum to present the findings and implementations of these DAL, DM, VOQL standards*
- Writing prototype implementation these DAL, DM, VOQL standards onto real data holdings from European Data Centres*
- If applicable, publish these implementations into the Euro-VO Registry of VObs resources Coordinate with EuroVO-AIDA Service Activities for these (prototype) implementations of these DAL, DM, VOQL standards to be consumed by VObs tools[...]*

WP7 milestones & deliverables

- Common milestones to all JRAs
 - Technology Forums
 - IVOA Interoperability meetings
- Deliverables

D7.1	WP7-JRA2 intermediate report and associated prototypes	ESA	April 2009	 04/09/2009
D7.2	WP7-JRA2 final report and associated prototypes	ESA	April 2010	Not due yet

WP7 Identified Tasks/Leads

- WP7_T1_AsynchDAL UEDIN (Guy Rixon)
- WP7_T2_SEDLibrary ESO (ESO)
- WP7_T3_FootprintDAL CNRS (Francois Bonnarel)
- WP7_T4_GenericDS CNRS + ESA (Jesus Salgado)
- WP7_T5_AssocSAP ESA (Jesus Salgado) + CNRS } WP7_T10
- WP7_T6_PhotometryDM ESA (Jesus Salgado)
- WP7_T7_RadioCubes UEDIN (Anita Richards)
- WP7_T8_ADQLLibrary ESA (Aurelien Stebe)
- WP7_T9_SourceCat ESA (Inaki Ortiz)
- WP7_T10_ObsProvDM CNRS (Mireille Louys)
- WP7_T11_Units UEDIN (Anita Richards)

Work has focused on some of these tasks, because of their importance for the partner activities and of the (evolving) international context and priorities

Christophe Arviset (ESA)

T2: SED Library

- Spectra Converter libraries from spectra native format to IVOA SpectrumDM format
- Generalized the process of adding Spectrum DM metadata (Coverage, sampling, curation, etc.) as a configuration
- Software ready for production at ESO
- Some more work required to make it as a distributable package for usage by other people
- Full details in:
 - http://cds.u-strasbg.fr/twikiAIDA/pub/EuroVOAIDA/FifthTechnologyForumWP7/wp7-t2-report_201003.pdf
- Work has provided feedback on SSAP and SpectrumDM IVOA protocols

T4: Generic Dataset

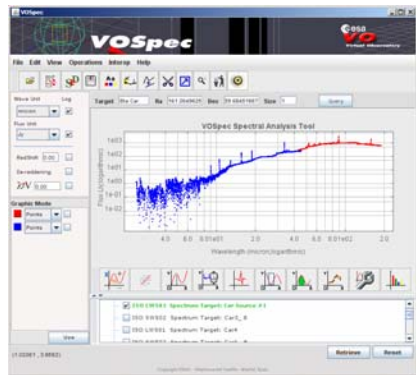
T5: Associations in S*AP

- Work in this context now merged into Observation Data Model work (see Task 10) and SIAP 2 development

T6: Photometry DM Objectives

- Aim is to include photometry data in VO context
- Old and recurrent request of the astrophysical community. One of the main topics raised during community workshops
- Photometry data have many related problems but we can include a lot of data by relatively simple work
- In theory, SSAP gives support to photometry data, but no services providing photometry data are created. Something is missing :
 - Filter characterization
 - Format of the different ways to serialize photometry data

Photometry Use Case 1: Synthetic Photometry



Give me list of registered Filters
(possible constrained by wavelength range)

Response, VOTable (VOResource?)

Show filters so user can select

Give Details for a certain filter list

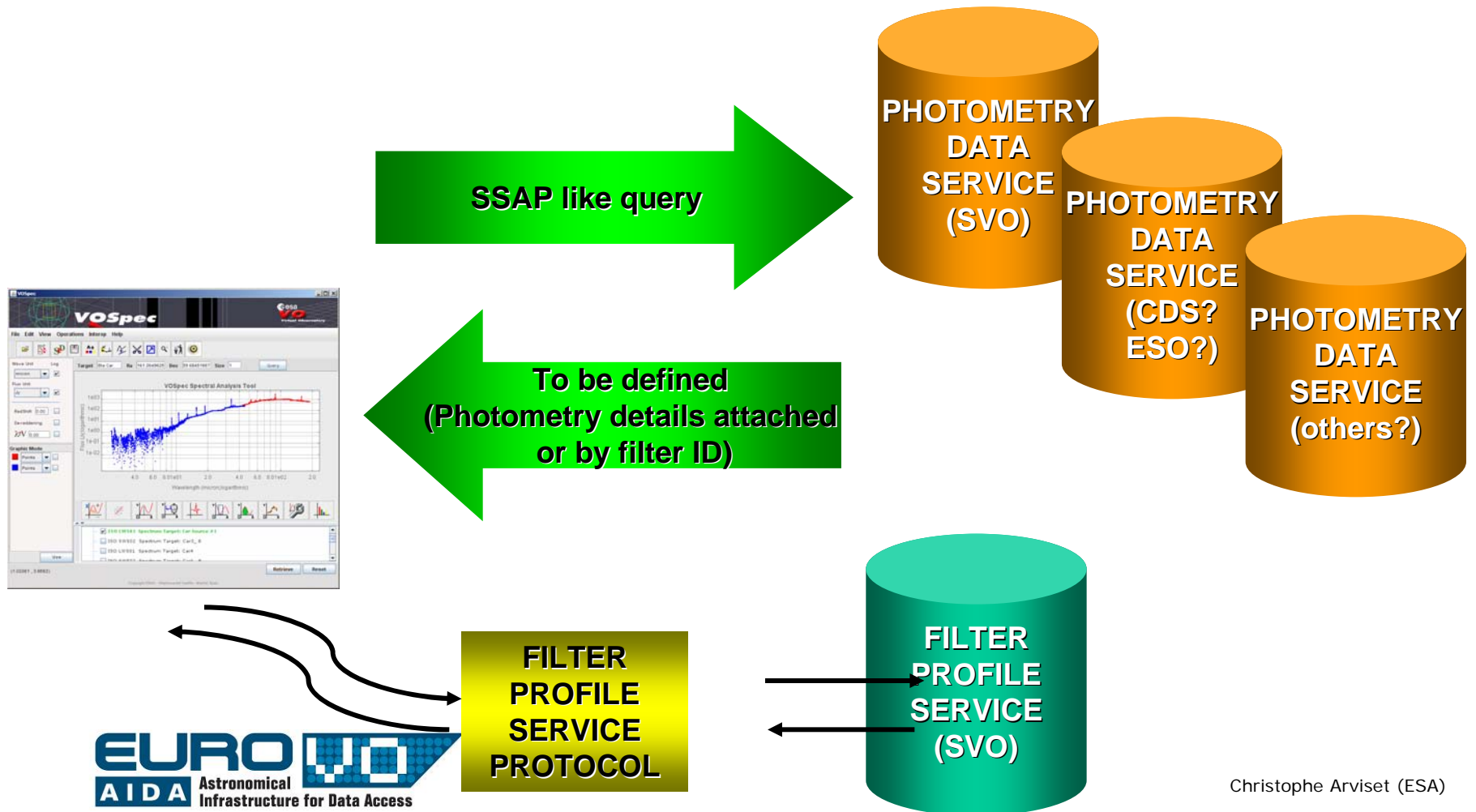
Response, VOTable (VOResource?)
Including link to Transmission curve

Use filter
Details to create synthetic photometry points using
real/model spectra as input

FILTER
PROFILE
SERVICE
(SVO)

FILTER
PROFILE
SERVICE
PROTOCOL

Photometry Use Case 2: Photometry Data Services

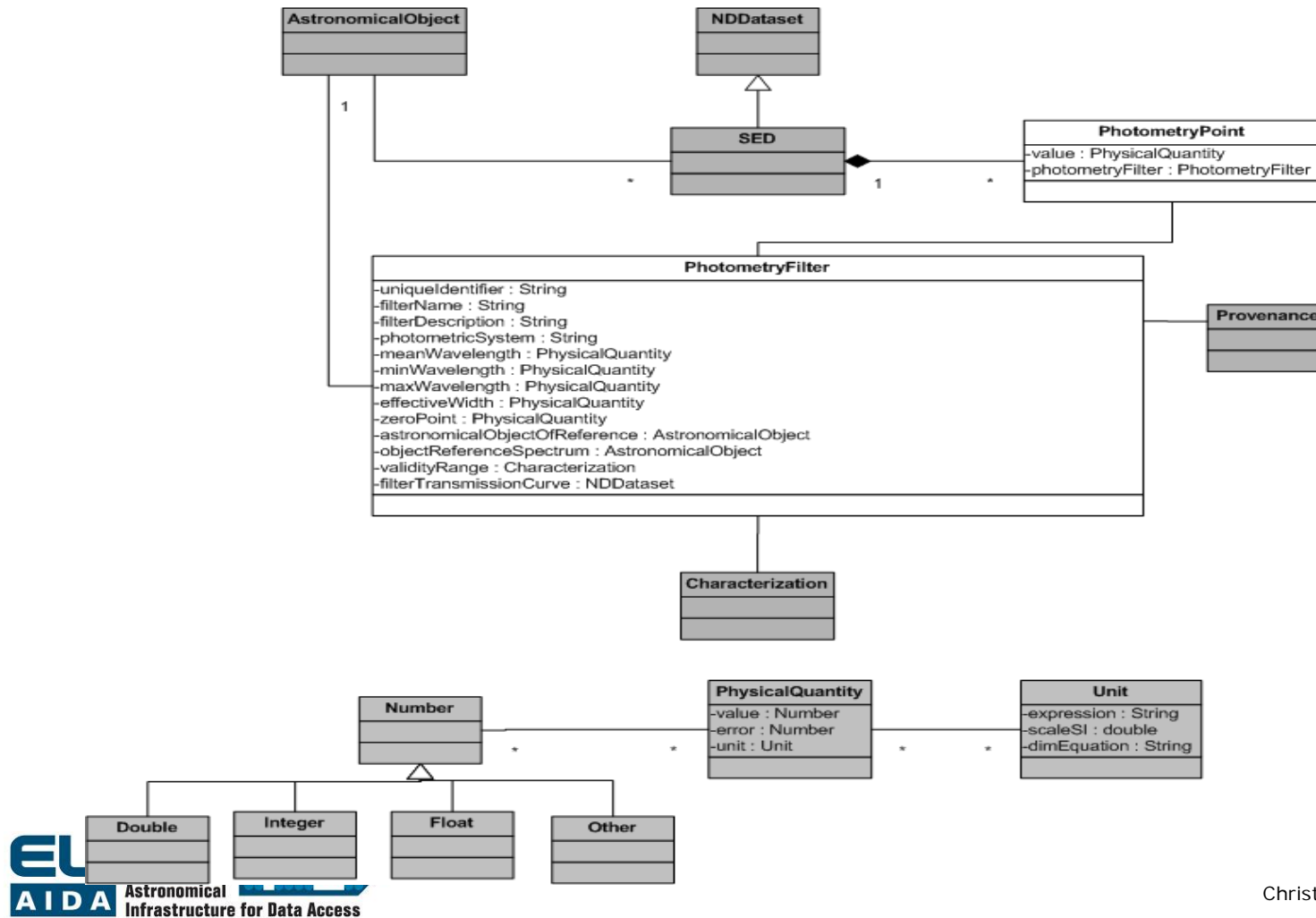


T6: Photometry DM Activities

- Definition of SSAP services for photometry data (ESAVO/SVO)
 - Implementation of 5 SSAP new services following this definition
 - (4 SSAP including theoretical data, a.k.a. TSAPs - COND, DUSTY, KURUCZ, NEWGEN and
 - 1 SSAP including observational data - IUE photometry)
 - As far as we know, these are the first services of this type in VO context
 - Services registered in EuroVO registry (SVO)
 - Adaptation of VOSpec to consume these photometric SSAP services

USE CASE 2 IMPLEMENTED
 - Definition of a Filter Profile service
 - FPS server implemented by SVO
 - FPS client implemented by ESAVO and integrated in VOSpec
 - Module added to VOSpec to allow the creation of synthetic photometry at client level using Filter Profile Service information
- USE CASE 1 IMPLEMENTED
- Photometry Filter DM updated as per result of previous exercise
 - (CDS) Metadata tables have been added in the VizieR DB to allow for extraction of photometric data from the catalogues stored there.

T6: Photometry DM



T7: Radio Cubes

- Updated IVOA Note on polarization on Feb. 2010
 - Initial draft note in May 2009
 - Discussion at interop meetings, then update towards formal note
 - <http://ivoa.net/Documents/Notes/Polarization/>

- Ongoing process to extract specific requirements, draft document in circulation to VO groups and to relevant staff of ALMA, e-MERLIN, NRAO, LOFAR, EVN

International Virtual Observatory
Alliance

IVOA Documents



Note on the description of polarization data
Version 1.0

IVOA Note 03 February 2010

Interest/Working Group:

<http://www.ivoa.net/wiki/bin/view/IVOA/IvoaDataModel>

Author(s):

IVOA Data Model Working Group; AIDA WP4

Editor(s):

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Abstract

This is a draft note to provide information on how polarized data are usually described and how this could be characterised for VO use. The emphasis is on data likely to be published to the VO, using radio conventions.

Status of this document

This is an IVOA Note expressing suggestions from and opinions of the authors. It is intended to share best practices, possible approaches, or other perspectives on interoperability with the Virtual Observatory. It should not be referenced or otherwise interpreted as a standard specification.

T10:ObsProvDM : Observation DM in the TAP context (ObsTAP) - 1

- Became 1st priority at Euro-VO AIDA and IVOA level
 - Following discussion on Science Priorities
- CoreComponentsObservation Data Model
 - consistent and concise description of the minimal set of metadata for observations necessary to perform data discovery within a TAP service
 - List of mandatory and optional fields with database names and utypes finalized by Fall 2009 interop
 - <http://www.ivoa.net/cgi-bin/twiki/bin/view/IVOA/ObsDMCoreComponents>

T10:ObsProvDM : Observation DM in the TAP context (ObsTAP) - 2

- Implementations going on of 1st TAP services with CoreComponentsObservation DM
 - Already fulfill many data discovery science use cases
- CoreComponentsObservation DM can then evolve to more extended ObservationDM

CoreComponentsObservation DM

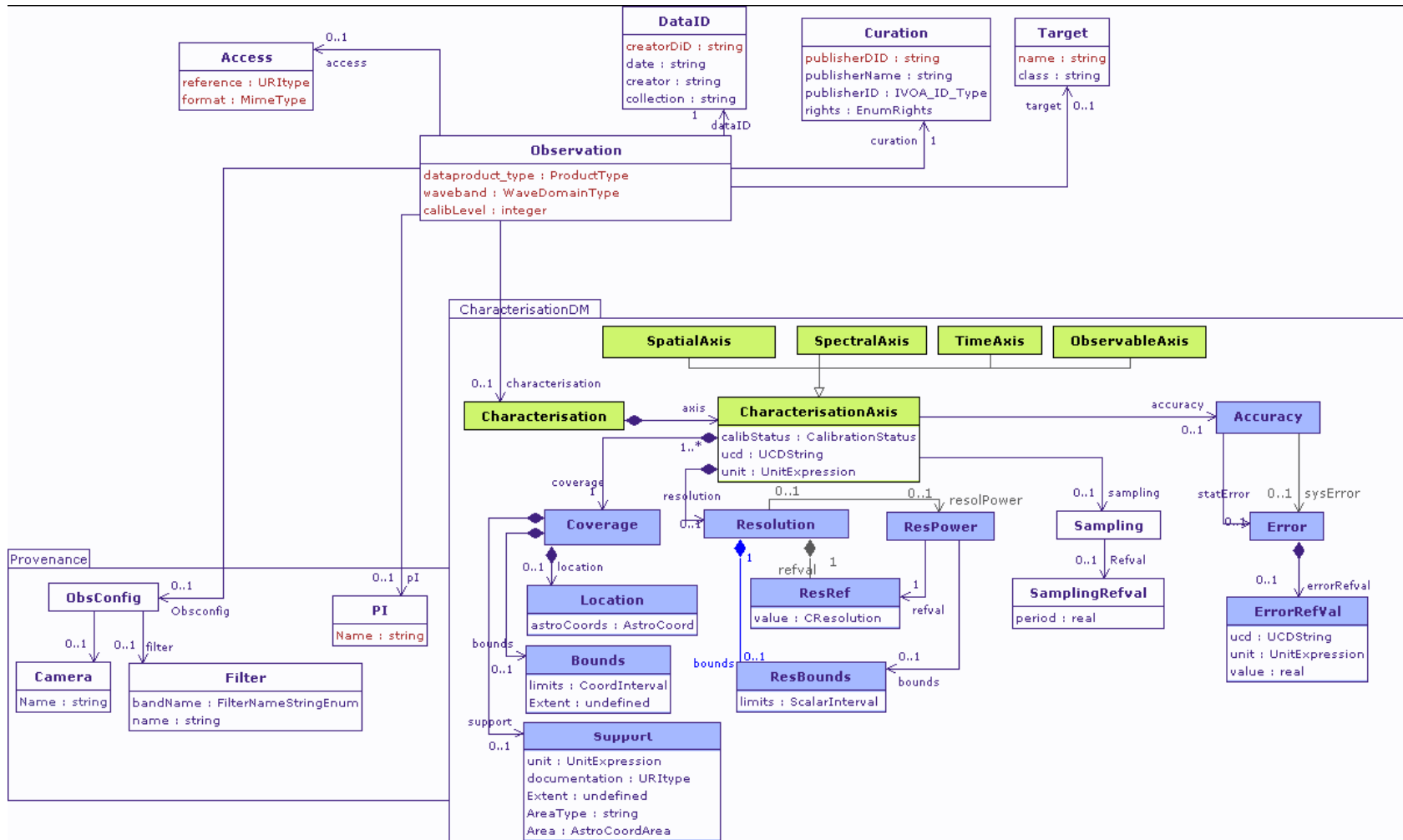
Mandatory items for the Observation data model -- Post telecon -- M.Louys - November 3rd, 2009

MANDATORY items in the Obs Core Components Model				
Local short name	Utype	Units	Type	Description
dataprodu <u>ct</u> _type	obs:Observation.ProductType		enum	see proposal [1] below
obs_id	obs:Curation.PublisherDID			unique ivoa ID
obs_ivoa_id	obs:DataID.CreatorDID			unique ivoa ID
calib_level	obs:Char/Observation.calibLevel		enum integer	observable calibration status
target_name	obs:Target.name		string	
s_ra	obs:Char/SpatialAxis.Coverage.Location.coord.Position2D.Value2.C1	[deg]	float	central Spatial Position in ICRS
s_dec	obs:Char/SpatialAxis.Coverage.Location.coord.Position2D.Value2.C2	[deg]	float	
s_resolution	obs:Char/SpatialAxis.Resolution.RefVal	[arcsec]	float	Spatial resolution of data
s_bounding_box	obs:Char/SpatialAxis.Coverage.Bounds.Charbox		Char/CharBox	A bounding box
s_area	obs:Char/SpatialAxis.Coverage.Support..Extent	[deg**2]	float	Aperture angular area 's size
t_start	obs:Char/TimeAxis.Coverage.Bounds.Limits.TimeInterval.StartTime	[ISO8601?, MJD?]		Start time
t_stop	obs:Char/TimeAxis.Coverage.Bounds.Limits.TimeInterval.StopTime	[ISO8601?, MJD?]		Stop time
t_span	obs:Char/TimeAxis.Coverage.Bounds.Extent	day	float	Total observation time
t_exptime	obs:Char/TimeAxis.Coverage.Support.Extent	[s]	float	Total exposure time
t_resolution	obs:Char/TimeAxis.Resolution.refVal	[s]	float	Temporal resolution FWHM
em_min	obs:Char/SpectralAxis.Coverage.Bounds.limits.Interval.LoLim	Hz	float	start in spectral coordinates
em_max	obs:Char/SpectralAxis.Coverage.Bounds.limits.Interval.HiLim	Hz	float	stop in spectral coordinates
em_res_power	obs:Char/SpectralAxis.Resolution.ResolPower		unitless	Value of the resolution Power along the SpectralAxis
instrument	obs:Provenance/ObsConfig.instrument.name		string	in uppercase
em_domain	obs:Observation.waveband		enum string	vr:waveband in VODataservice RADIO MILLIMETER INFRARED OPTICAL UV EUV X-RAY GAMMA-RAY

T10: ObsProvenance DM

- Use case: Trace the history of the data
- Main packages are
 - Data Processing, Ambient conditions, Observing configuration
- Natural link with Characterization and Observation Data Models
- Observing elements (with common features to all wavelengths : telescope, instrument, mode, etc ...)
- Version 0.1 of the draft with preliminary uml and xml schema with examples planned this Spring

T10: Observation Data Model



T11: Units

- Discussion brought from Euro-VO AIDA within IVOA context
 - <http://www.ivoa.net/cgi-bin/twiki/bin/view/IVOA/UnitsDesc>
- VO Units draft written.
 - <http://www.ivoa.net/forum/dm/att-1495/WD-VOUnits-20090519.pdf>
- Discussion going on at IVOA

Other Main Highlights from IVOA meetings

WP7 related activities

- SIAP 1.0 became an IVOA Rec. in Nov 2009
- TAP 1.0 became an IVOA Rec. in Feb 2010
- SLAP 1.0 and SSLDM 1.0 are being in IVOA RFC period, should soon become Rec.

- Strong Euro-VO involvement on these activities
 - IVOA DAL, DM, VOQL WG chairs and vice-chairs from Euro-VO AIDA partners

Meetings - 1

- 1st AIDA Technical Forum, Strasbourg, France, March 2008
 - <http://wiki.eurovotech.org/twiki/bin/view/VOTech/StageSevenPlanningMeetings>
 - In cooperation with VOTECH
- IVOA Interoperability Meeting, Trieste, Italy, May 2008
 - <http://www.ivoa.net/cgi-bin/twiki/bin/view/IVOA/InterOpMay2008>
- 2nd AIDA Technical Forum, Cambridge, UK, September 2008
 - <http://wiki.eurovotech.org/twiki/bin/view/VOTech/StageEightPlanningMeetings>
 - In cooperation with VOTECH
- IVOA Interoperability Meeting, Baltimore, USA, October 2008
 - <http://www.ivoa.net/cgi-bin/twiki/bin/view/IVOA/InterOpOct2008>
- 3rd AIDA Technical Forum, Strasbourg, France, March 2009
 - <http://cds.u-strasbg.fr/twikiAIDA/bin/view/EuroVOAIDA/ThirdTechnologyForum>
- IVOA Interoperability Meeting, Strasbourg, France, May 2009
 - <http://www.ivoa.net/cgi-bin/twiki/bin/view/IVOA/InterOpMay2009>

Meetings - 2

- 4th AIDA Technical Forum, Trieste, Italy, September 2009
 - <http://cds.u-strasbg.fr/twikiAIDA/bin/view/EuroVOAIDA/FourthTechnologyForum>
- IVOA Interoperability Meeting, Garching, Germany, November 2009
 - <http://www.ivoa.net/cgi-bin/twiki/bin/view/IVOA/InterOpNov2009>
- 5th AIDA Technical Forum, Cambridge, UK, September 2008
 - <http://cds.u-strasbg.fr/twikiAIDA/bin/view/EuroVOAIDA/FifthTechnologyForum>
- (upcoming) IVOA Interoperability Meeting, Victoria, Canada, May 2010
 - <http://www.ivoa.net/cgi-bin/twiki/bin/view/IVOA/InterOpMay2010>

D7.2: WP7-JRA2 final report and associated prototypes

- Initially planned for April 2010
- Better to wait for IVOA Interop meeting in May in Victoria, Canada
- To be released in June 2010