

Observation/ Characterization 2/  
Provenance  
(F.Bonnarel,CDS)

# Contributors

- This status doesn't mean they all agree with all what I am presenting, but that their participation and comments helped me to present this.
- Mireille Louys, Anita M. S. Richards, François Bonnarel, Igor Chilingarian, Fabien Chereau, Andreas Wicenec, Jonathan Mc Dowell, Gerard Lemson, Alberto Micol, Peter Skoda  
(all above from Cambridge UK meeting)

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Juan de Dios Santander Vela, Nausicaa Delmotte, Miguel Cervino, Arnold Rots, Carlos Rodrigo, Gretchen Greene, Tamas Budavari, Alex Szalay, Bruno Rino, Thomas Boch, Doug Tody

# Goals: satisfy use cases

- Characterization 1 and new sort of data: polarized data.
- Observation container : a use case for NVO footprint service. ---> see demo by Gretchen and Tamas tomorrow.
- Provenance: describing Filter transmission curve and access to Progenitors
- Characterization of complex data (« a la « WFPC2) and integration of spectral response

```

<?xml version="1.0" encoding="UTF-8" ?>
- <char:characterisation xmlns:char="http://www.ivoa.net/xml/Characterisation/Characterisation-v1.11.xsd">
- <char:characterisationAxis>
  <char:axisName>spatial</char:axisName>
  <char:ucd>pos</char:ucd>
  <char:unit>deg</char:unit>
  <char:coordsystem id="TT-ICRS-TOPO" xlin:href="ivo://STClib/CoordSys#TT-ICRS-TOPO" xmlns:xlin="http://www.w3.org/1999/xlink" />
  <char:accuracy />
  <char:independentAxis>true</char:independentAxis>
  <char:calibrationStatus>CALIBRATED</char:calibrationStatus>
- <char:numBins2>
  <char:I1>61</char:I1>
  <char:I2>61</char:I2>
</char:numBins2>
  <char:undersamplingStatus>true</char:undersamplingStatus>
  <char:regularsamplingStatus>true</char:regularsamplingStatus>
- <char:coverage>
- <char:location>
  <char:unit>deg</char:unit>
  - <char:coord>
    - <stc:Position2D xsi:type="stc:posVector2CoordinateType" xmlns:stc="http://www.ivoa.net/xml/STC/stc-v1.30.xsd" xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance">
      <stc:Name1>lon</stc:Name1>
      <stc:Name2>lat</stc:Name2>
      - <stc:Value2 xsi:type="stc:double2Type">
        <stc:C1>187.705930837</stc:C1>
        <stc:C2>123.9112333351</stc:C2>
      </stc:Value2>
    </stc:Position2D>
  </char:coord>
</char:location>
- <char:bounds>
  <char:unit>deg</char:unit>
- <char:limits>
  - <char:CharBox>
    - <stc:Value2 xsi:type="stc:double2Type" xmlns:stc="http://www.ivoa.net/xml/STC/stc-v1.30.xsd" xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance">
      <stc:C1>187.705930837</stc:C1>
      <stc:C2>123.9112333351</stc:C2>
    </stc:Value2>
    - <stc:Size2 xsi:type="stc:double2Type" xmlns:stc="http://www.ivoa.net/xml/STC/stc-v1.30.xsd" xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance">
      <stc:C1>0.254</stc:C1>
      <stc:C2>0.254</stc:C2>
    </stc:Size2>
  </char:CharBox>
  </char:limits>
</char:bounds>
</char:coverage>
- <char:samplingPrecision>
- <char:samplingPrecisionRefVal>
  <char:unit>deg</char:unit>
  - <char:samplingPeriod>
    <stc:PixSize xsi:type="stc:double1Type" xmlns:stc="http://www.ivoa.net/xml/STC/stc-v1.30.xsd" xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance">0.41666</stc:PixSize>
  </char:samplingPeriod>
  </char:samplingPrecisionRefVal>
</char:samplingPrecision>
</char:characterisationAxis>
- <char:characterisationAxis>
  <char:axisName>time</char:axisName>
  <char:ucd>time</char:ucd>
  <char:unit>none</char:unit>
  <char:accuracy />

```

```
<char:numBins1>1</char:numBins1>
- <char:coverage>
- <char:location>
  <char:unit>Ghz</char:unit>
- <char:coord>
  - <stc:Spectral xmlns:stc="http://www.ivoa.net/xml/STC/stc-v1.30.xsd">
    <stc:Value>1.4</stc:Value>
  </stc:Spectral>
  </char:coord>
</char:location>
</char:coverage>
</char:characterisationAxis>
- <char:characterisationAxis>
  <char:axisName>Stokes</char:axisName>
  <char:ucd>phot.flux.density;phys.polarization.Stokes</char:ucd>
  <char:unit>Jy.beam-1</char:unit>
  <char:coordsystem id="UTC-ICRS-TOPO" xlin:href="ivo://STClib/CoordSys#UTC-ICRS-TOPO" xmlns:xlin="ht
  <char:accuracy />
  <char:calibrationStatus>CALIBRATED</char:calibrationStatus>
- <char:numBins3>
  <char:I1>10000</char:I1>
  <char:I2>10000</char:I2>
  <char:I3>10000</char:I3>
</char:numBins3>
- <char:coverage>
- <char:location>
  <char:unit>Jy.beam-1</char:unit>
- <char:coord>
  - <stc:Vector3DCoordinate xmlns:stc="http://www.ivoa.net/xml/STC/stc-v1.30.xsd">
    <stc:Name1>StokesI</stc:Name1>
    <stc:Name2>StokesQ</stc:Name2>
    <stc:Name3>StokesU</stc:Name3>
  - <stc:Value3>
    <stc:C1>10.0</stc:C1>
    <stc:C2>10.0</stc:C2>
    <stc:C3>10.0</stc:C3>
  </stc:Value3>
  </stc:Vector3DCoordinate>
</char:coord>
</char:location>
- <char:bounds>
  <char:unit>Jy.beam-1</char:unit>
- <char:limits>
- <char:Coord3VecInterval xsi:type="stc:coord3VecIntervalType" xmlns:stc="http://www.ivoa.net/xml/STC/stc-v1.30.xsd" xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance">
  - <stc:LoLimit3Vec>
    <stc:C1>10.0</stc:C1>
    <stc:C2>10.0</stc:C2>
    <stc:C3>10.0</stc:C3>
  </stc:LoLimit3Vec>
  - <stc:HiLimit3Vec>
    <stc:C1>20.0</stc:C1>
    <stc:C2>20.0</stc:C2>
    <stc:C3>20.0</stc:C3>
  </stc:HiLimit3Vec>
  </char:Coord3VecInterval>
</char:limits>
</char:bounds>
</char:coverage>
```

- Précédent
- Transférer
- Enregistrer l'arrière-plan sous...
- Choisir comme image d'arrière-plan
- Copier l'arrière-plan
- Sélectionner tout
- Coller
- Créer un raccourci
- Ajouter aux Favoris...
- Afficher la source
- Codage
- Imprimer...
- Aperçu avant impression...
- Actualiser
- Exporter vers Microsoft Excel
- Recherche Google
- Envoyer à
- Infos page
- Propriété :

Polarized fluxes axis



Characterisation

xm1ns:char		http://www.ivoa.net/xml/Characterisation/Characterisation-v1.11.xsd					
char:characterisationAxis (6)							
	char:axisName	char:ucd	char:unit	char:coordsyst...	char:accuracy	char:independe...	char:c
1	spatial	pos	deg	char:coordsyst...		true	CALIBRATI
2	time	time	none				CALIBRATI
3	spectral	em	Ghz			true	CALIBRATI
4	StokesI	phot.flux.density;phys.polarization.stokes.I	iy	char:coordsyst...		false	CALIBRATI
5	StokesQ	phot.flux.density;phys.polarization.stokes.Q	Jy.beam-1			false	CALIBRATI
6	StokesU	phot.flux.density;phys.polarization.stokes.U	Jy.beam-1			false	CALIBRATI

Charac with 3 Stokes axes

# Spatial, spectral and time axes

**char:coverage**

- char:location**
  - char:unit**: deg
  - char:coord**
    - stc:Position2D**
      - stc:Name1**: lon
      - stc:Name2**: lat
      - stc:Value2**
        - stc:C1**: 187.705930837
        - stc:C2**: 123.9112333351
- char:bounds**
  - char:unit**: deg
  - char:limits**
    - char:CharBox**
      - stc:Value2**
        - stc:C1**: 187.705930837
        - stc:C2**: 123.9112333351
      - stc:Size2**
        - stc:C1**: 0.254
        - stc:C2**: 0.254

- char:coverage**
- char:location**
  - char:unit**: none
  - char:coord**
    - stc:Time**
      - stc:TimeInstant**
        - stc:ISOTime**: 1995-02-27T00:00:00
- char:coverage**
- char:location**
  - char:unit**: Ghz
  - char:coord**
    - stc:Spectral**
      - stc:Value**: 1.4

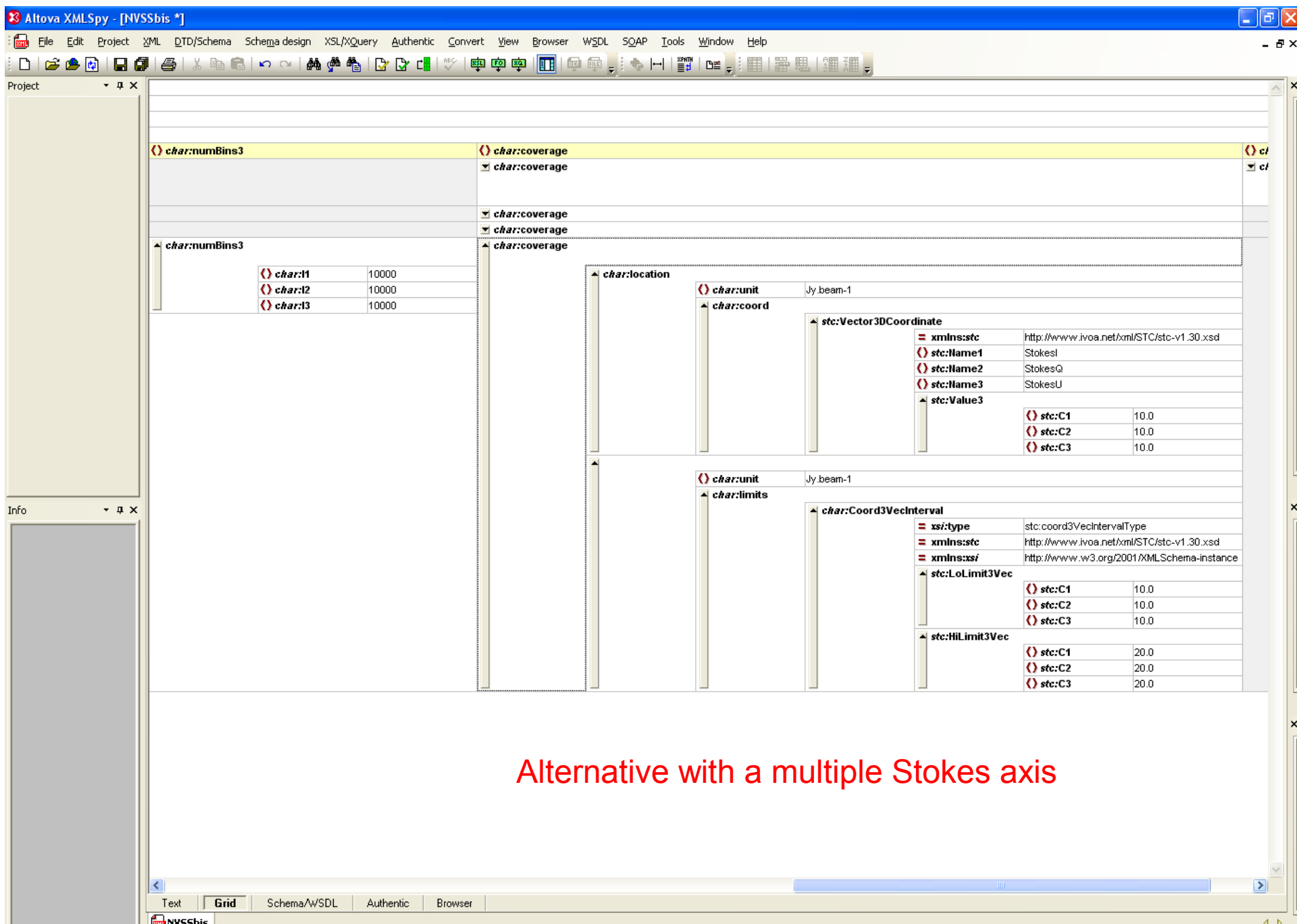


project

<b>char:undersam...</b>	<b>char:regularsa...</b>	<b>char:numBins1</b>	<b>char:coverage</b>	<b>Two Stokes axes</b>	<b>cl</b>
true	true	1	<ul style="list-style-type: none"> <li>char:coverage</li> <li>char:coverage</li> <li>char:coverage</li> <li>char:coverage</li> </ul>		cl
		1			
		10000	<ul style="list-style-type: none"> <li>char:coverage</li> <li>char:location               <ul style="list-style-type: none"> <li>char:unit: Jy.beam-1                   <ul style="list-style-type: none"> <li>char:coord                       <ul style="list-style-type: none"> <li>stc:ScalarCoordinate                           <ul style="list-style-type: none"> <li>stc:Value: http://www.ivoa.net/xml/STC/stc-v1.30.xsd</li> <li>stc:Value: 10.0</li> </ul> </li> </ul> </li> </ul> </li> <li>char:bounds               <ul style="list-style-type: none"> <li>char:limits                   <ul style="list-style-type: none"> <li>char:CharBox                       <ul style="list-style-type: none"> <li>stc:Value: xsi:type=stc:double2Type xmlns:stc=http://www.ivoa.n...                           <ul style="list-style-type: none"> <li>stc:Size                               <ul style="list-style-type: none"> <li>xsi:type: stc:double2Type</li> <li>xmlns:stc: http://www.ivoa.net/xml/STC/stc-v1.30.xsd</li> <li>xmlns:xsi: http://www.w3.org/2001/XMLSchema-instance</li> <li>Rbc Text: 20.0</li> </ul> </li> </ul> </li> </ul> </li> </ul> </li> </ul> </li> </ul> </li></ul>		
		10000	<ul style="list-style-type: none"> <li>char:coverage</li> <li>char:location               <ul style="list-style-type: none"> <li>char:unit: Jy.beam-1                   <ul style="list-style-type: none"> <li>char:coord                       <ul style="list-style-type: none"> <li>stc:ScalarCoordinate                           <ul style="list-style-type: none"> <li>stc:Value: http://www.ivoa.net/xml/STC/stc-v1.30.xsd</li> <li>stc:Value: 10.0</li> </ul> </li> </ul> </li> </ul> </li> <li>char:bounds               <ul style="list-style-type: none"> <li>char:limits                   <ul style="list-style-type: none"> <li>stc:Size                       <ul style="list-style-type: none"> <li>xsi:type: stc:double2Type</li> <li>xmlns:stc: http://www.ivoa.net/xml/STC/stc-v1.30.xsd</li> <li>xmlns:xsi: http://www.w3.org/2001/XMLSchema-instance</li> <li>Rbc Text: 20.0</li> </ul> </li> <li>char:CharBox                       <ul style="list-style-type: none"> <li>stc:Value                           <ul style="list-style-type: none"> <li>xsi:type: stc:double2Type</li> <li>xmlns:stc: http://www.ivoa.net/xml/STC/stc-v1.30.xsd</li> </ul> </li> </ul> </li> </ul> </li> </ul> </li> </ul> </li></ul>		

Text Grid Schema/WSDL Authentic Browser





char:11	10000
char:12	10000
char:13	10000

stc:Vector3DCoordinate	
xmns:stc	http://www.ivoa.net/xml/STC/stc-v1.30.xsd
stc:Name1	StokesI
stc:Name2	StokesQ
stc:Name3	StokesU
stc:Value3	
stc:C1	10.0
stc:C2	10.0
stc:C3	10.0

stc:Coord3VecInterval	
xsi:type	stc:coord3VecIntervalType
xmns:stc	http://www.ivoa.net/xml/STC/stc-v1.30.xsd
xmns:xsi	http://www.w3.org/2001/XMLSchema-instance
stc:LoLimit3Vec	
stc:C1	10.0
stc:C2	10.0
stc:C3	10.0
stc:HiLimit3Vec	
stc:C1	20.0
stc:C2	20.0
stc:C3	20.0

Alternative with a multiple Stokes axis

# Polarization

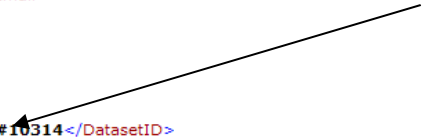
- Should we choose the simple axis or multi axis mode ?
- What to put in polarized flux resolution and sampling ? (minimal meaningful difference)
- Do we need a « Polarization axis » enumerating the list of Polarization states available?

```

<?xml version="1.0" encoding="UTF-8" standalone="yes" ?>
- <Observation xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance" xmlns:stc="http://www.ivoa.net/xml/STC/stc-v1.30.xsd"
  xmlns:cha="http://www.ivoa.net/xml/Characterisation/Characterisation-v1.11.xsd" xmlns:xlink="http://www.w3.org/1999/xlink" xmlns="http://www.ivoa.net/xml/Observation/Observation.xsd"
  xsi:schemaLocation="http://www.ivoa.net/xml/Observation/Observation.xsd Observation2.xsd">
  <!-- Curation as in Spectrum -->
- <Curation>
  <Publisher>SAO</Publisher>
  <PublisherID>ivo://cfa.harvard.edu</PublisherID>
- <Contact>
  <Name>Gretchen Greene/Tamas Budavari</Name>
  <Email>jcm@cfa.harvard.edu</Email>
  </Contact>
</Curation>
<!-- Data ID section -->
- <DataID>
  <Title>Arp 220 Image</Title>
  <Creator>STScI/JHU</Creator>
  <DatasetID>ivo://stsci.edu/mast#10314</DatasetID>
  <Date>2003-12-31T14:00:02Z</Date>
  <Version>1</Version>
  <Instrument>BCS</Instrument>
  <Logo>http://stsci.edu/nvo/sdsslogo.jpg</Logo>
</DataID>
<!-- Access to the actual data -->
- <Access>
  <acref>http://sdss.jhu.edu/images/sdss/10314.fits</acref>
  <format>application/fits</format>
</Access>
<!-- Characterisation -->
- <char>
- <cha:characterisationAxis>
  <cha:axisName>Sky</cha:axisName>
  <cha:ucd>pos.eq</cha:ucd>
  <cha:unit>deg</cha:unit>
  <cha:coordsystem id="TT-ICRS-TOPO" xlink:type="simple" xlink:href="ivo://STClib/CoordSys#TT-ICRS-TOPO" />
  <cha:independentAxis>true</cha:independentAxis>
  <cha:calibrationStatus>CALIBRATED</cha:calibrationStatus>
- <cha:numBins2>
  <cha:I1>500</cha:I1>
  <cha:I2>500</cha:I2>
</cha:numBins2>
  <cha:undersamplingStatus>false</cha:undersamplingStatus>
  <cha:regularsamplingStatus>true</cha:regularsamplingStatus>
- <cha:coverage>
- <cha:location>
  - <cha:coord_coord_system_id="TT-ICRS-TOPO">
  - <stc:Position2D>
    <stc:Name1>RA</stc:Name1>
    <stc:Name2>Dec</stc:Name2>
  - <stc:Value2>
    <stc:C1>132.4210</stc:C1>
    <stc:C2>12.1232</stc:C2>
  </stc:Value2>
  </stc:Position2D>
  </cha:coord>
</cha:location>
- <cha:bounds>
  <cha:unit>arcsec</cha:unit>
  <cha:Extent>20</cha:Extent>
  - <cha:limits_coord_system_id="TT-ICRS-TOPO">
    <cha:Coord2VecInterval />
  </cha:limits>

```

Ivo id



Curation, datasetID, Access

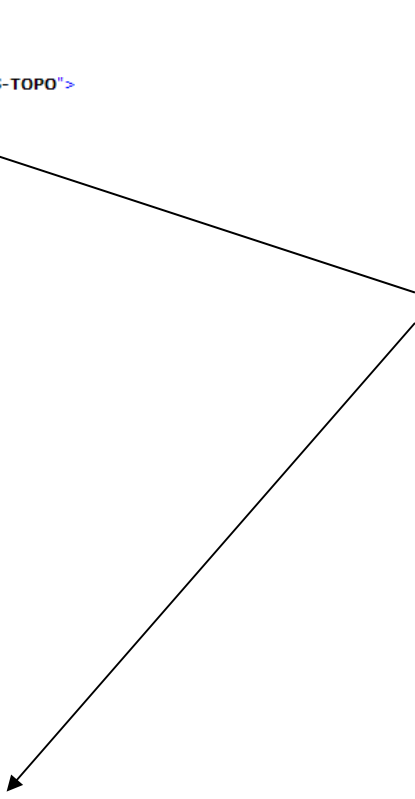


```

<cha:regularsamplingStatus>true</cha:regularsamplingStatus>
- <cha:coverage>
  - <cha:location>
    - <cha:coord coord_system_id="TT-ICRS-TOPO">
      - <stc:Position2D>
        <stc:Name1>RA</stc:Name1>
        <stc:Name2>Dec</stc:Name2>
        - <stc:Value2>
          <stc:C1>132.4210</stc:C1>
          <stc:C2>12.1232</stc:C2>
        </stc:Value2>
      </stc:Position2D>
    </cha:coord>
  </cha:location>
- <cha:bounds>
  <cha:unit>arcsec</cha:unit>
  <cha:Extent>20</cha:Extent>
  - <cha:limits coord_system_id="TT-ICRS-TOPO">
    <cha:Coord2VecInterval />
  </cha:limits>
</cha:bounds>
<!-- The spatial support is actually the footprint -->
- <cha:support>
  - <cha:coordsystem id="RegionCoordSys">
    - <stc:SpaceFrame>
      - <stc:Cart2DRefFrame projection="TAN" ref_frame_id="TT-ICRS-TOPO">
        - <stc:Transform2 unit="deg">
          <stc:C1>1.0</stc:C1>
          <stc:C2>1.0</stc:C2>
          <stc:PosAngle xsi:nil="true" />
        </stc:Transform2>
      </stc:Cart2DRefFrame>
    - <stc:CoordRefPos>
    - <stc:Position2D>
      - <stc:Value2>
        <stc:C1>132.4210</stc:C1>
        <stc:C2>12.1232</stc:C2>
      </stc:Value2>
    </stc:Position2D>
    </stc:CoordRefPos>
    <stc:SPHERICAL coord_naxes="2" />
  </stc:SpaceFrame>
</cha:coordsystem>
- <cha:Area coord_system_id="RegionCoordSys">
  - <stc:Polygon coord_system_id="RegionCoordSys" unit="deg">
    - <stc:Vertex>
      - <stc:Position>
        <stc:C1>0.2</stc:C1>
        <stc:C2>-0.1</stc:C2>
      </stc:Position>
    </stc:Vertex>
    - <stc:Vertex>
      - <stc:Position>
        <stc:C1>-0.2</stc:C1>
        <stc:C2>-0.1</stc:C2>
      </stc:Position>
    </stc:Vertex>
    - <stc:Vertex>
      - <stc:Position>
        <stc:C1>-0.2</stc:C1>
        <stc:C2>0.1</stc:C2>
      </stc:Position>
    </stc:Vertex>
  </stc:Polygon>
</cha:Area>
  </cha:coverage>
</cha:regularsamplingStatus>

```

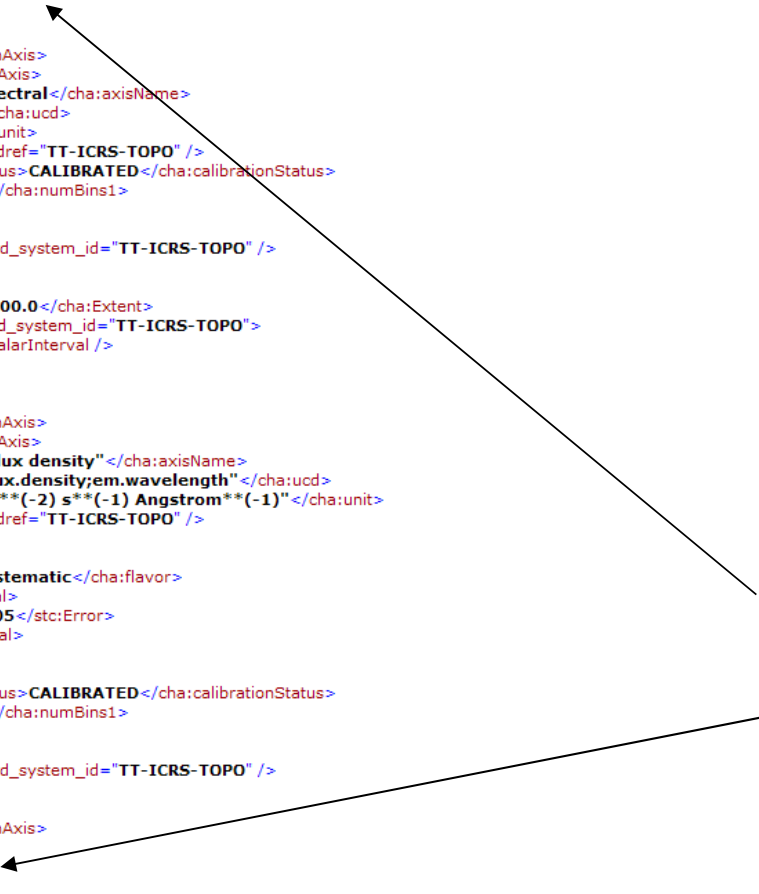
Spatial support = footprint in Stc-x

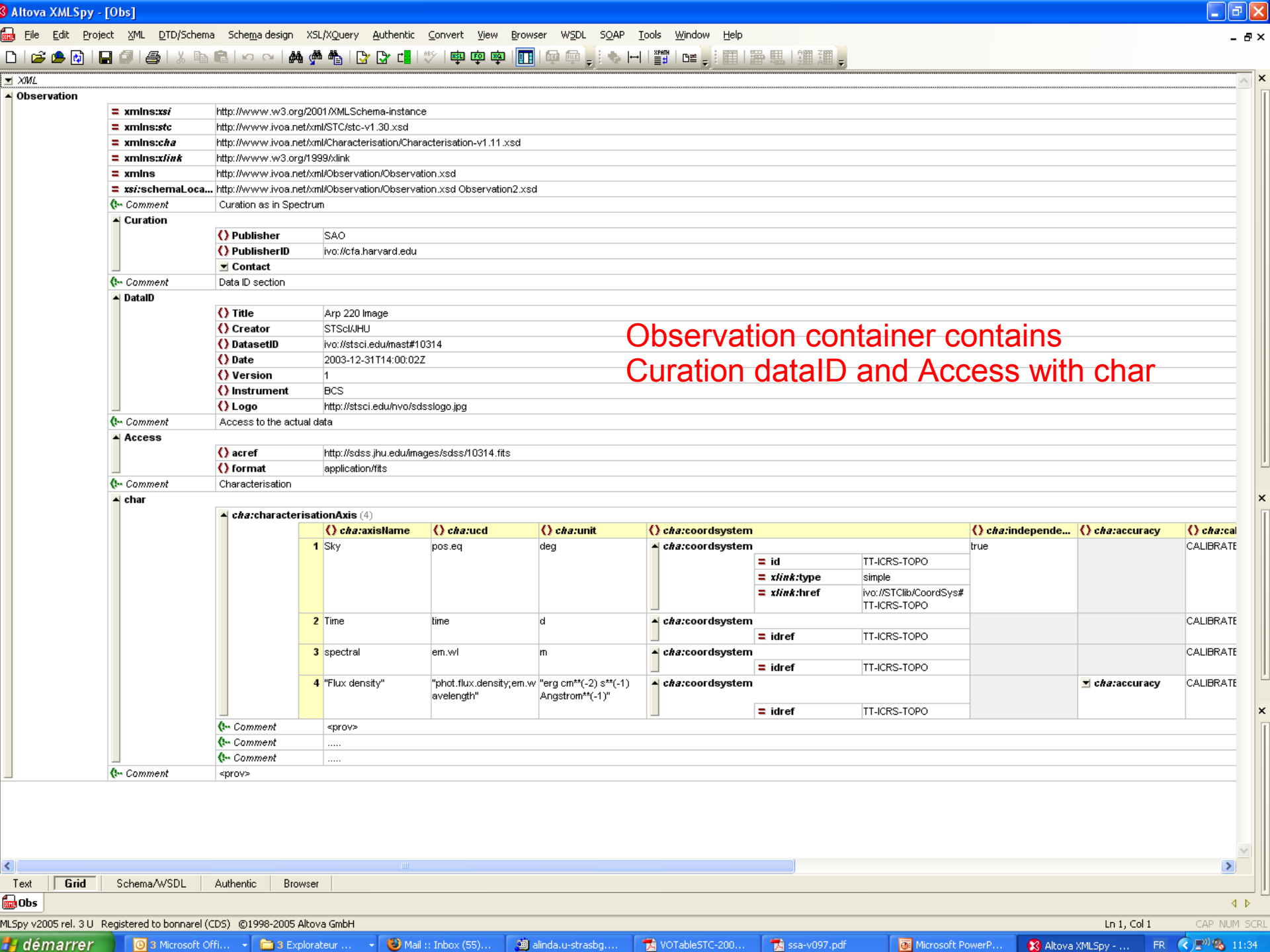




```
- <cha:coord coord_system_id="TT-ICRS-TOPO" />
- <stc:Time>
  - <stc:TimeInstant>
    <stc:MJDTime>52148.3252</stc:MJDTime>
  </stc:TimeInstant>
</stc:Time>
</cha:coord>
</cha:location>
- <cha:bounds>
  <cha:Extent>1500.0</cha:Extent>
  - <cha:limits coord_system_id="TT-ICRS-TOPO">
    <cha:Coord2VecInterval />
  </cha:limits>
</cha:bounds>
</cha:coverage>
</cha:characterisationAxis>
- <cha:characterisationAxis>
  <cha:axisName>spectral</cha:axisName>
  <cha:ucd>em.wl</cha:ucd>
  <cha:unit>m</cha:unit>
  <cha:coordsystem idref="TT-ICRS-TOPO" />
  <cha:calibrationStatus>CALIBRATED</cha:calibrationStatus>
  <cha:numBins1>1</cha:numBins1>
  - <cha:coverage>
    - <cha:location>
      <cha:coord coord_system_id="TT-ICRS-TOPO" />
    </cha:location>
    - <cha:bounds>
      <cha:Extent>3000.0</cha:Extent>
      - <cha:limits coord_system_id="TT-ICRS-TOPO">
        <cha:CoordScalarInterval />
      </cha:limits>
    </cha:bounds>
    </cha:coverage>
  </cha:characterisationAxis>
- <cha:characterisationAxis>
  <cha:axisName>"Flux density"</cha:axisName>
  <cha:ucd>"phot.flux.density;em.wavelength"</cha:ucd>
  <cha:unit>"erg cm**(-2) s**(-1) Angstrom**(-1)"</cha:unit>
  <cha:coordsystem idref="TT-ICRS-TOPO" />
  - <cha:accuracy>
    - <cha:sysError>
      <cha:flavor>systematic</cha:flavor>
      - <cha>ErrorRefVal>
        <stc>ErrorRefVal>0.05</stc>ErrorRefVal>
      </cha>ErrorRefVal>
    </cha:sysError>
  </cha:accuracy>
  <cha:calibrationStatus>CALIBRATED</cha:calibrationStatus>
  <cha:numBins1>1</cha:numBins1>
  - <cha:coverage>
    - <cha:location>
      <cha:coord coord_system_id="TT-ICRS-TOPO" />
    </cha:location>
  </cha:coverage>
</cha:characterisationAxis>
<!-- <prov> -->
<!-- ..... -->
<!-- ..... -->
</char>
<!-- <prov> -->
</Observation>
```

End of charac, place to hook  
The provenance



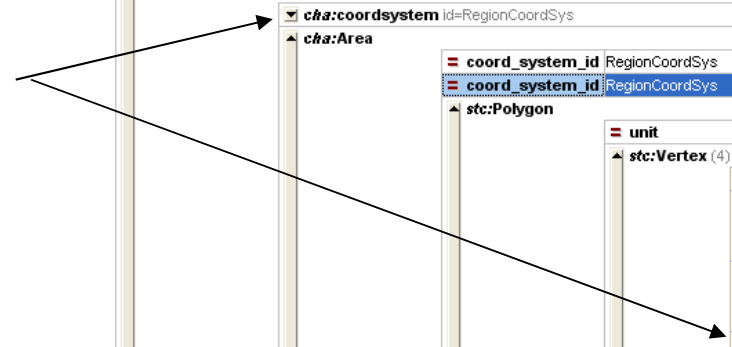


Observation container contains  
Curation dataID and Access with char

cha:characterisationAxis (4)						
cha:axisName	cha:ucd	cha:unit	cha:coordsystem	cha:independe...	cha:accuracy	cha:cal
1 Sky	pos.eq	deg	cha:coordsystem = id TT-ICRS-TOPO = xlink:type simple = xlink:href ivo://STCLib/CoordSys#TT-ICRS-TOPO	true		CALIBRATE
2 Time	time	d	cha:coordsystem = idref TT-ICRS-TOPO			CALIBRATE
3 spectral	em.wl	m	cha:coordsystem = idref TT-ICRS-TOPO			CALIBRATE
4 "Flux density"	"phot.flux.density;em.wavelength"	"erg cm**(-2) s**(-1) Angstrom**(-1)"	cha:coordsystem = idref TT-ICRS-TOPO		cha:accuracy	CALIBRATE



The footprint part



XML tree structure showing the following elements:

- cha:location**
  - cha:coord**
    - coord\_system\_id: TT-ICRS-TOPO
    - stc:Position2D
      - stc:Name1: RA
      - stc:Name2: Dec
      - stc:Value2
        - stc:C1: 132.4210
        - stc:C2: 12.1232
- cha:bounds**
  - cha:unit: arcsec
  - cha:Extent: 20
  - cha:limits: coord\_system\_id=TT-ICRS-TOPO
- Comment**: The spatial support is actually the footprint
- cha:support**
  - cha:coordsystem id=RegionCoordSys
    - cha:Area
      - coord\_system\_id: RegionCoordSys
      - stc:Polygon
        - unit: deg
        - stc:Vertex (4)
          - stc:Position
            - stc:C1: 0.2
            - stc:C2: -0.1
          - stc:Position
            - stc:C1: -0.2
            - stc:C2: -0.1
          - stc:Position
            - stc:C1: -0.2
            - stc:C2: 0.1
          - stc:Position
            - stc:C1: 0.2
            - stc:C2: 0.1

Unable to show schema: Schema has to begin with a schema-element!

OK

# Observation container

- Hook Characterization and footprints to DatasetID and Curation
- Basic structure is coming from Spectrum data model
- Use cases:
  - Footprint service (see demo by tamas and gretchen Tommorow)
  - VOSPACE « intelligent retrieval » (discussion with Dave Morris)
- Able to Hook provenance
- Comment from Doug (which I agree with): similar to generic dataset concept (see discussion in DAL tomorrow)

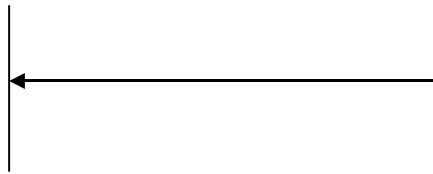




```
<?xml version="1.0" encoding="UTF-8" ?>
- <prov>
  - <observingConfig>
    - <Observatory>
      <name>CFHT</name>
      <observatoryLocation>stc description</observatoryLocation>
    </Observatory>
    - <ObservingElements>
      - <Telescope>
        <name>CFH</name>
        <diameter>4m</diameter>
      </Telescope>
      - <Focus>
        <name>MegaPrime</name>
        <type>Prime</type>
      </Focus>
      - <Grating>
        <type>None</type>
      </Grating>
      - <Filter>
        <name>IW756</name>
        <band>R</band>
        - <transmissionCurve>
          <dataModel>spectrum</dataModel>
          <type>table/fits</type>
          <acref>http://project.org/metadata/filter/IW756.xml</acref>
        </transmissionCurve>
      </Filter>
      - <Detector>
        <name>MEGACAM</name>
        <type>CCDArray</type>
      </Detector>
    </ObservingElements>
  </observingConfig>
  - <processing>
    - <processingStage>
      <type>mosaic</type>
    </processingStage>
    - <algorithm>
      <type>coaddition</type>
      - <projectMetadata>
        <format>text/xml</format>
        <acref>http://project.org/metadata/provenance/coaddition.xml</acref>
      </projectMetadata>
      <documentation>http://project.org/documentation/provenance/coaddition.html</documentation>
    </algorithm>
    - <AssociatedData>
      - <Access>
        <type>proGenitor</type>
        <format>image/fits</format>
        <acref>http://project.org/data/exposure/exposure1.fits</acref>
        <observationMetadata>http://project.org/data/exposure/exposure1.xml</observationMetadata>
      </Access>
      - <Access>
        <type>proGenitor</type>
        <format>image/fits</format>
        <acref>http://project.org/data/exposure/exposure2.fits</acref>
        <observationMetadata>http://project.org/data/exposure/exposure2.xml</observationMetadata>
      </Access>
      - <Access>
        <type>proGenitor</type>
        <format>image/fits</format>
        <acref>http://project.org/data/exposure/exposure3.fits</acref>
      </Access>
    </AssociatedData>
  </processing>
</prov>
```

Observational provenance

Filter Transmission curve





```
</transmissionCurve>
</Filter>
- <Detector>
  <name>MEGACAM</name>
  <type>CCDArray</type>
</Detector>
</ObservingElements>
</observingConfig>
- <processing>
- <processingStage>
  <type>mosaic</type>
- <algorithm>
  <type>coaddition</type>
- <projectMetadata>
  <format>text/xml</format>
  <acref>http://project.org/metadata/provenance/coaddition.xml</acref>
</projectMetadata>
<documentation>http://project.org/documentation/provenance/coaddition.html</documentation>
</algorithm>
- <AssociatedData>
- <Access>
  <type>proGenitor</type>
  <format>image/fits</format>
  <acref>http://project.org/data/exposure/exposure1.fits</acref>
  <observationMetadata>http://project.org/data/exposure/exposure1.xml</observationMetadata>
</Access>
- <Access>
  <type>proGenitor</type>
  <format>image/fits</format>
  <acref>http://project.org/data/exposure/exposure2.fits</acref>
  <observationMetadata>http://project.org/data/exposure/exposure2.xml</observationMetadata>
</Access>
- <Access>
  <type>proGenitor</type>
  <format>image/fits</format>
  <acref>http://project.org/data/exposure/exposure3.fits</acref>
  <observationMetadata>http://project.org/data/exposure/exposure3.xml</observationMetadata>
</Access>
- <Access>
  <type>proGenitor</type>
  <format>image/fits</format>
  <acref>http://project.org/data/exposure/exposure4.fits</acref>
  <observationMetadata>http://project.org/data/exposure/exposure4.xml</observationMetadata>
</Access>
</AssociatedData>
</processingStage>
- <processingStage>
  <type>confidenceMap</type>
- <algorithm>
  <type>weight map</type>
  <documentation>http://project.org/documentation/provenance/confidence.html</documentation>
</algorithm>
- <AssociatedData>
- <Access>
  <type>confidenceMap</type>
  <format>image/fits</format>
  <acref>http://project.org/data/exposure/thisimage_confidence.fits</acref>
</Access>
</AssociatedData>
</processingStage>
</processing>
</prov>
```

# Processing provenance



XML

prov

observingConfig		
Observatory		
name	CFHT	
observatoryLoc...	stc description	
ObservingElements		
Telescope		
name	CFH	
diameter		
Focus		
name	MegaPrime	
type	Prime	
Grating		
Filter		
name	IM756	
band	R	
transmissionCurve		
Detector		
name	MEGACAM	
type	CCDArray	
processing		
processingStage (2)		
type	algorithm	AssociatedData
1 mosaic	algorithm	AssociatedData
	type	coaddition
	projectMetadata	
	format	text/xml
	acref	http://project.org/metad ata/provenance/coaddit ion.xml
	documentation	http://project.org/documentation/provenance/co addition.html
2 confidenceMap	algorithm	AssociatedData
	type	weight map
	documentation	http://project.org/documentation/provenance/co nfidence.html

Observational provenance



Processing provenance



<b>name</b>	CFHT																																					
<b>observatoryLoc...</b>	stc description																																					
<b>Telescope</b>																																						
<b>name</b>	CFH																																					
<b>diameter</b>																																						
<b>Focus</b>																																						
<b>name</b>	MegaPrime																																					
<b>type</b>	Prime																																					
<b>Grating</b>																																						
<b>Filter</b>																																						
<b>name</b>	M756																																					
<b>band</b>	R																																					
<b>transmissionCurve</b>																																						
<b>Detector</b>																																						
<b>name</b>	MEGACAM																																					
<b>type</b>	CCDArray																																					
<b>type</b>	<b>algorithm</b>	<b>AssociatedData</b>																																				
mosaic	<table border="1"> <tr> <td><b>algorithm</b></td> <td></td> </tr> <tr> <td><b>type</b></td> <td>coaddition</td> </tr> <tr> <td colspan="2"><b>projectMetadata</b></td> </tr> <tr> <td><b>format</b></td> <td>text/xml</td> </tr> <tr> <td><b>acref</b></td> <td>http://project.org/metadata/provenance/coaddition.xml</td> </tr> <tr> <td><b>documentation</b></td> <td>http://project.org/documentation/provenance/coaddition.html</td> </tr> </table>	<b>algorithm</b>		<b>type</b>	coaddition	<b>projectMetadata</b>		<b>format</b>	text/xml	<b>acref</b>	http://project.org/metadata/provenance/coaddition.xml	<b>documentation</b>	http://project.org/documentation/provenance/coaddition.html	<table border="1"> <tr> <td><b>AssociatedData</b></td> <td></td> </tr> <tr> <td colspan="2"><b>Access (4)</b></td> </tr> <tr> <td><b>type</b></td> <td><b>format</b></td> <td><b>acref</b></td> <td><b>observationMet...</b></td> </tr> <tr> <td>1 proGenerator</td> <td>image/fits</td> <td>http://project.org/data/exposure/exposure1.fits</td> <td>http://project.org/data/exposure/exposure1.xml</td> </tr> <tr> <td>2 proGenerator</td> <td>image/fits</td> <td>http://project.org/data/exposure/exposure2.fits</td> <td>http://project.org/data/exposure/exposure2.xml</td> </tr> <tr> <td>3 proGenerator</td> <td>image/fits</td> <td>http://project.org/data/exposure/exposure3.fits</td> <td>http://project.org/data/exposure/exposure3.xml</td> </tr> <tr> <td>4 proGenerator</td> <td>image/fits</td> <td>http://project.org/data/exposure/exposure4.fits</td> <td>http://project.org/data/exposure/exposure4.xml</td> </tr> </table>	<b>AssociatedData</b>		<b>Access (4)</b>		<b>type</b>	<b>format</b>	<b>acref</b>	<b>observationMet...</b>	1 proGenerator	image/fits	http://project.org/data/exposure/exposure1.fits	http://project.org/data/exposure/exposure1.xml	2 proGenerator	image/fits	http://project.org/data/exposure/exposure2.fits	http://project.org/data/exposure/exposure2.xml	3 proGenerator	image/fits	http://project.org/data/exposure/exposure3.fits	http://project.org/data/exposure/exposure3.xml	4 proGenerator	image/fits	http://project.org/data/exposure/exposure4.fits	http://project.org/data/exposure/exposure4.xml
<b>algorithm</b>																																						
<b>type</b>	coaddition																																					
<b>projectMetadata</b>																																						
<b>format</b>	text/xml																																					
<b>acref</b>	http://project.org/metadata/provenance/coaddition.xml																																					
<b>documentation</b>	http://project.org/documentation/provenance/coaddition.html																																					
<b>AssociatedData</b>																																						
<b>Access (4)</b>																																						
<b>type</b>	<b>format</b>	<b>acref</b>	<b>observationMet...</b>																																			
1 proGenerator	image/fits	http://project.org/data/exposure/exposure1.fits	http://project.org/data/exposure/exposure1.xml																																			
2 proGenerator	image/fits	http://project.org/data/exposure/exposure2.fits	http://project.org/data/exposure/exposure2.xml																																			
3 proGenerator	image/fits	http://project.org/data/exposure/exposure3.fits	http://project.org/data/exposure/exposure3.xml																																			
4 proGenerator	image/fits	http://project.org/data/exposure/exposure4.fits	http://project.org/data/exposure/exposure4.xml																																			
confidenceMap	<table border="1"> <tr> <td><b>algorithm</b></td> <td></td> </tr> <tr> <td><b>type</b></td> <td>weight map</td> </tr> <tr> <td><b>documentation</b></td> <td>http://project.org/documentation/provenance/confidence.html</td> </tr> </table>	<b>algorithm</b>		<b>type</b>	weight map	<b>documentation</b>	http://project.org/documentation/provenance/confidence.html	<table border="1"> <tr> <td><b>AssociatedData</b></td> <td></td> </tr> <tr> <td colspan="2"><b>Access</b></td> </tr> <tr> <td><b>type</b></td> <td>confidenceMap</td> </tr> <tr> <td><b>format</b></td> <td>image/fits</td> </tr> <tr> <td><b>acref</b></td> <td>http://project.org/data/exposure/thisimage_confidence.fits</td> </tr> </table>	<b>AssociatedData</b>		<b>Access</b>		<b>type</b>	confidenceMap	<b>format</b>	image/fits	<b>acref</b>	http://project.org/data/exposure/thisimage_confidence.fits																				
<b>algorithm</b>																																						
<b>type</b>	weight map																																					
<b>documentation</b>	http://project.org/documentation/provenance/confidence.html																																					
<b>AssociatedData</b>																																						
<b>Access</b>																																						
<b>type</b>	confidenceMap																																					
<b>format</b>	image/fits																																					
<b>acref</b>	http://project.org/data/exposure/thisimage_confidence.fits																																					

Mosaic Processing stage

Algorithm

associated data  
data access

metadata access

# Provenance ?

- Work out the Observation Config elements?
- Work out the ProcessingStages elements types : mosaic, confidence map, calibration , etc ..
- Add an « ambient conditions » subclass.
- For transmission curve use an IVOA spectrum instance with no Target, no spatial nor time char, relative flux. (caution: differences between utype list and xml schema )



```

<?xml version="1.0" encoding="UTF-8" ?>
- <characterization xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance" xmlns:stc="http://www.ivoa.net/xml/STC/stc-v1.30.xsd"
  xmlns="http://www.ivoa.net/xml/Characterisation/Characterisation-v2.0.xsd" xmlns:xlink="http://www.w3.org/1999/xlink">
- <globalChar>
- <characterizationAxis>
  <axisName>spatial</axisName>
  <calibrationStatus>CALIBRATED</calibrationStatus>
  <ucd>pos</ucd>
  <unit>deg</unit>
  <coordsystem id="TT-ICRS-TOPO" xlink:type="simple" xlink:href="ivo://STClib/CoordSys#TT-ICRS-TOPO" />
  <independentAxis>true</independentAxis>
- <numBins2>
  <I1>512</I1>
  <I2>512</I2>
</numBins2>
<undersamplingStatus>false</undersamplingStatus>
<regularsamplingStatus>true</regularsamplingStatus>
- <coverage>
- <location>
  - <coord coord_system_id="TT-ICRS-TOPO">
    - <stc:Position2D>
      <stc:Name1>RA</stc:Name1>
      <stc:Name2>Dec</stc:Name2>
      - <stc:Value2>
        <stc:C1>308.655620</stc:C1>
        <stc:C2>60.211775</stc:C2>
        </stc:Value2>
      </stc:Position2D>
    </coord>
  </location>
- <bounds>
  - <limits coord_system_id="TT-ICRS-TOPO">
    - <stc:LoLimit2Vec>
      <stc:C1>308.798321</stc:C1>
      <stc:C2>60.069312</stc:C2>
    </stc:LoLimit2Vec>
    - <stc:HiLimit2Vec>
      <stc:C1>308.512238</stc:C1>
      <stc:C2>60.353806</stc:C2>
    </stc:HiLimit2Vec>
  </limits>
</bounds>
</coverage>
</characterizationAxis>
- <characterizationAxis>
  <axisName>time</axisName>
  <calibrationStatus>UNCALIBRATED</calibrationStatus>
  <ucd>time</ucd>
  <unit>none</unit>
  <!-- none unit is for ISO-8601 format -->
  <coordsystem idref="TT-ICRS-TOPO" />
  <independentAxis>true</independentAxis>
  <numBins>1</numBins>
- <coverage>
- <location>
  - <coord coordsystem_id="TT-ICRS-TOPO">
    - <stc:Time>
      - <stc:TimeInstant>
        <stc:MJDTime>51510.112523</stc:MJDTime>
      </stc:TimeInstant>
    </stc:Time>
  </coord>

```

## Charac2 : global caharacterization



```
- <segment>
  <number>1</number>
  <characterization>
    <characterizationAxis>
      <axisName>spatial</axisName>
      <calibrationStatus>CALIBRATED</calibrationStatus>
      <ucd>pos</ucd>
      <unit>deg</unit>
      <coordsystem id="TT-ICRS-TOPO" xlink:type="simple" xlink:href="ivo://STClib/CoordSys#TT-ICRS-TOPO" />
      <independantAxis>true</independantAxis>
    </characterizationAxis>
    <numBins2>
      <I1>256</I1>
      <I2>256</I2>
    </numBins2>
    <undersamplingStatus>>false</undersamplingStatus>
    <regularsamplingStatus>true</regularsamplingStatus>
    <coverage>
      <location>
        <coord coord_system_id="TT-ICRS-TOPO">
          <stc:Position2D>
            <stc:Name1>RA</stc:Name1>
            <stc:Name2>Dec</stc:Name2>
          </stc:Position2D>
          <stc:Value2>
            <stc:C1>308.055620</stc:C1>
            <stc:C2>60.011775</stc:C2>
          </stc:Value2>
        </stc:Position2D>
      </coord>
    </location>
    <bounds>
      <limits coord_system_id="TT-ICRS-TOPO">
        <stc:LoLimit2Vec>
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          <stc:C2>60.369312</stc:C2>
        </stc:LoLimit2Vec>
        <stc:HiLimit2Vec>
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          <stc:C2>60.153806</stc:C2>
        </stc:HiLimit2Vec>
      </limits>
    </bounds>
    </coverage>
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    <stc:Resolution>0.000800</stc:Resolution>
  </resolutionRefVal>
  <resolution>
    <stc:Resolution>0.000800</stc:Resolution>
  </resolution>
  <samplingPrecision>
    <unit>deg</unit>
    <samplingPrecisionRefVal>
      <stc:Resolution>0.000800</stc:Resolution>
    </samplingPrecisionRefVal>
    <samplingPeriod>
      <stc:C1>0.000278</stc:C1>
      <stc:C2>0.000278</stc:C2>
    </samplingPeriod>
  </samplingPeriod>
  </samplingPrecision>
</characterizationAxis>
</characterization>
</segment>
- <segment>
  <number>2</number>
  <characterization>
    <characterizationAxis>
```

Charac2: a WFPC2 segment



```

- <bounds>
- <limits>
  <stc:LoLimit>2.020000</stc:LoLimit>
  <stc:HiLimit>2.300000</stc:HiLimit>
</limits>
</bounds>
- <sensitivity>
- <variationMap>
  - <Map>
    <type>table</type>
    <format>xml/votable</format>
    <datamodel>spectrum</datamodel>
    <acref>http://project.org/metadata/spectral/response.xml</acref>
  </Map>
  - <Map>
    <type>moments</type>
  - <Moment>
    <name>mean</name>
    <unit>m</unit>
    <value>0.5e-7</value>
  </Moment>
  - <Moment>
    <name>sigma</name>
    <unit>m</unit>
    <value>0.1e-7</value>
  </Moment>
  - <Moment>
    <name>kurtosis</name>
    <unit>m</unit>
    <value>0.01e-7</value>
  </Moment>
  - <Moment>
    <name>4</name>
    <unit>m</unit>
    <value>0.0023e-7</value>
  </Moment>
  </Map>
  - <Map>
    <type>parametric</type>
    <function>a*exp(-(x-b)**2/c)</function>
  - <variable>
    <name>x</name>
  </variable>
  - <param>
    <name>a</name>
    <value />
  </param>
  - <param>
    <name>b</name>
    <value />
  </param>
  - <param>
    <name>c</name>
    <value />
  </param>
  </Map>
</variationMap>
<documentation>http://dummy.org/dummyDoc/dummy.html</documentation>
</sensitivity>
</coverage>
</characterizationAxis>
</globalChar>
- <segment>

```

Charac2: three ways of serializing  
The spectral response in sensitivity/variationMap



XML

characterization

- xmlns:xsi http://www.w3.org/2001/XMLSchema-instance
- xmlns:stc http://www.ivoa.net/xml/STC/stc-v1.30.xsd
- xmlns http://www.ivoa.net/xml/Characterisation/Characterisation-v2.0.xsd
- xmlns:xlink http://www.w3.org/1999/xlink

globalChar

characterizationAxis (3)

	axisName	calibrationStatus	ucd	unit	Comment	coordsystem	independantAxis	numBins2	unders
1	spatial	CALIBRATED	pos	deg		coordsystem id...	true	numBins2	false
2	time	UNCALIBRATED	time	none	none unit is for ISO-8601 format	coordsystem idr...	true		
3	spectral	CALIBRATED	em	m		coordsystem idr...	true		

segment (4)

number	characterization																	
1	<p>characterization</p> <p>characterizationAxis</p> <ul style="list-style-type: none"> <li>axisName spatial</li> <li>calibrationStatus CALIBRATED</li> <li>ucd pos</li> <li>unit deg</li> <li>coordsystem id=TT-ICRS-TOPO xlink:type=simple xlink:href=ivo://STClib/CoordSys#TT-ICRS-TOPO</li> <li>independantAxis true</li> <li>numBins2           <table border="1"> <thead> <tr> <th></th> <th>I1</th> <th>I2</th> </tr> </thead> <tbody> <tr> <td></td> <td>256</td> <td></td> </tr> <tr> <td></td> <td></td> <td>256</td> </tr> </tbody> </table> </li> <li>undersampling... false</li> <li>regularsamplin... true</li> <li>coverage           <ul style="list-style-type: none"> <li>location               <ul style="list-style-type: none"> <li>coord                   <ul style="list-style-type: none"> <li>coord_system_id TT-ICRS-TOPO                       <ul style="list-style-type: none"> <li>stc:Position2D                           <table border="1"> <thead> <tr> <th>stc:name1</th> <th>RA</th> </tr> </thead> <tbody> <tr> <td>stc:C1</td> <td>308.055620</td> </tr> <tr> <th>stc:name2</th> <th>Dec</th> </tr> <tr> <td>stc:C2</td> <td>60.011775</td> </tr> </tbody> </table> </li> </ul> </li> </ul> </li> </ul> </li> <li>bounds</li> <li>resolution</li> <li>samplingPrecision</li> </ul> </li> </ul>		I1	I2		256				256	stc:name1	RA	stc:C1	308.055620	stc:name2	Dec	stc:C2	60.011775
	I1	I2																
	256																	
		256																
stc:name1	RA																	
stc:C1	308.055620																	
stc:name2	Dec																	
stc:C2	60.011775																	
2	characterization																	
3	characterization																	

First segment



XML

- version 1.0
- encoding UTF-8

characterization

- xmlns:xsi http://www.w3.org/2001/XMLSchema-instance
- xmlns:stc http://www.ivoa.net/xml/STC/stc-v1.30.xsd
- xmlns http://www.ivoa.net/xml/Characterisation/Characterisation-v2.0.xsd
- xmlns:xlink http://www.w3.org/1999/xlink

globalChar

segment (4)

number	characterization														
1	<ul style="list-style-type: none"> <li>characterization           <ul style="list-style-type: none"> <li>characterizationAxis</li> </ul> </li> </ul>														
2	<ul style="list-style-type: none"> <li>characterization</li> </ul>														
3	<ul style="list-style-type: none"> <li>characterization</li> </ul>														
4	<ul style="list-style-type: none"> <li>characterization           <ul style="list-style-type: none"> <li>characterizationAxis               <ul style="list-style-type: none"> <li>axisName spatial</li> <li>calibrationStatus CALIBRATED</li> <li>ucd pos</li> <li>unit deg</li> <li>coordsystem id=TT-ICRS-TOPO xlink:type=simple xlink:href=ivo://STClib/CoordSys#TT-ICRS-TOPO</li> <li>independentAxis true</li> <li>numBins2                   <table border="1"> <tr> <td>l1</td> <td>128</td> </tr> <tr> <td>l2</td> <td>128</td> </tr> </table> </li> <li>undersampling... false</li> <li>regularsamplin... true</li> <li>coverage                   <ul style="list-style-type: none"> <li>location                       <ul style="list-style-type: none"> <li>coord                           <ul style="list-style-type: none"> <li>coord_system_id TT-ICRS-TOPO                               <ul style="list-style-type: none"> <li>stc:Position2D                                   <table border="1"> <tr> <td>stc:Name1</td> <td>RA</td> </tr> <tr> <td>stc:Name2</td> <td>Dec</td> </tr> <tr> <td>stc:Value2</td> <td> <table border="1"> <tr> <td>stc:C1</td> <td>309.055620</td> </tr> <tr> <td>stc:C2</td> <td>61.011775</td> </tr> </table> </td> </tr> </table> </li> </ul> </li> </ul> </li> </ul> </li> </ul> </li> </ul> </li> </ul> </li></ul>	l1	128	l2	128	stc:Name1	RA	stc:Name2	Dec	stc:Value2	<table border="1"> <tr> <td>stc:C1</td> <td>309.055620</td> </tr> <tr> <td>stc:C2</td> <td>61.011775</td> </tr> </table>	stc:C1	309.055620	stc:C2	61.011775
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stc:C1	309.055620														
stc:C2	61.011775														

resolution

samplingPrecision

Last segment



<b>xmlns:stc</b>	http://www.ivoa.net/xml/STC/stc-v1.30.xsd
<b>xmlns</b>	http://www.ivoa.net/xml/Characterisation/Characterisation-v2.0.xsd
<b>xmlns:xlink</b>	http://www.w3.org/1999/xlink

globalChar					
segment (4)					
number	characterization				
1	1 characterization characterizationAxis axisName: spatial calibrationStatus: CALIBRATED ucd: pos unit: deg coordsystem: id=TT-ICRS-TOPO xlink:type=simple xlink:href=ivo://STClib/CoordSys#TT-ICRS-TOPO independantAxis: true numBins2: undersampling...: false regularsamplin...: true coverage: resolution: samplingPrecision: unit: deg samplingPrecisionRefVal: samplingPeriod: <table border="1"> <tr> <td>stc:C1</td> <td>0.000278</td> </tr> <tr> <td>stc:C2</td> <td>0.000278</td> </tr> </table>	stc:C1	0.000278	stc:C2	0.000278
stc:C1	0.000278				
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3	characterization				
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stc:C1	0.0001				

Two segment with Different samplings

Spectral axis coverage sensitivity

Table representation

Moment representation

location

coord

coord\_system\_id TT-ICRS-TOPO

stc:Spectral

stc:Value	2.160000
-----------	----------

bounds

limits

stc:LoLimit	2.020000
stc:HiLimit	2.300000

sensitivity

variationMap

Map (3)

type	format	datamodel	acref	Moment															
1 table	xml/votable	spectrum	http://project.org/metadata/spectral/response.xml																
2 moments				<p>Moment (4)</p> <table border="1"><thead><tr><th>name</th><th>unit</th><th>value</th></tr></thead><tbody><tr><td>1 mean</td><td>m</td><td>0.5e-7</td></tr><tr><td>2 sigma</td><td>m</td><td>0.1e-7</td></tr><tr><td>3 kurtosis</td><td>m</td><td>0.01e-7</td></tr><tr><td>4 4</td><td>m</td><td>0.0023e-7</td></tr></tbody></table>	name	unit	value	1 mean	m	0.5e-7	2 sigma	m	0.1e-7	3 kurtosis	m	0.01e-7	4 4	m	0.0023e-7
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4 4	m	0.0023e-7																	
3 parametric																			

documentation http://dummy.org/dummyDoc/dummy.html



coord_system_id TT-ICRS-TOPO	
stc:Spectral	
stc:Value	2.160000
stc:LoLimit	2.020000
stc:HiLimit	2.300000

Spectral axis coverage sensitivity  
 Parametric representation

Map (3)

type	format	datamodel	acref	Moment	function	variable	param												
1 table	xml/votable	spectrum		http://project.org/metad ata/spectral/response.x ml															
2 moments				Moment (4)															
3 parametric					$a \cdot \exp(-(x-b)^2/c)$	<table border="1"> <thead> <tr> <th>variable</th> <th>name</th> </tr> </thead> <tbody> <tr> <td></td> <td>x</td> </tr> </tbody> </table>	variable	name		x	<table border="1"> <thead> <tr> <th>param (3)</th> <th>name</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>a</td> </tr> <tr> <td>2</td> <td>b</td> </tr> <tr> <td>3</td> <td>c</td> </tr> </tbody> </table>	param (3)	name	1	a	2	b	3	c
variable	name																		
	x																		
param (3)	name																		
1	a																		
2	b																		
3	c																		

http://dummy.org/dummyDoc/dummy.html

Unable to show schema:  
 Schema has to begin with a schema-element!

OK

# Characterization 2

- More complex ? -→ not that much
- Moments variation Maps -→ statistical charac ( meet SimDB needs?)
- parametric description questioned → use standard xml description for that.
- New »enumeration«  
feature for Pol Axis?

# Contests, Issues

(discussed on Wednesday DM2?)

- Format:
  - promote JSON (instead or in parallel ?) to xml
  - VOTABLE questioned and FITS « forgotten » (I disagree on both !)
- Units and coordinate systems
  - Should we fix them to ICRS/SI (I disagree again)
- Relationship with DAL and applications
  - SIA2, DAL architecture, Generic dataset (tomorrow SAL session)
  - Demo using Charac metadata in a Workflow (Thursday morning)

# What to do next ?

- Participate to side-meeting on this (Tuesday 5:15/6:40)
- Check and criticize the examples
- Build UML and xml schema on top of that.
- Provide consistent examples in xml, vatable FITS and maybe JSON.
- Write the working draft.