



ESO/CDS instrument footprint facility

Use of VO Standards: SIA, STC and VOTABLE

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09/21/2006 Moscow F.Bonnarel
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The ESO/CDS footprint facility

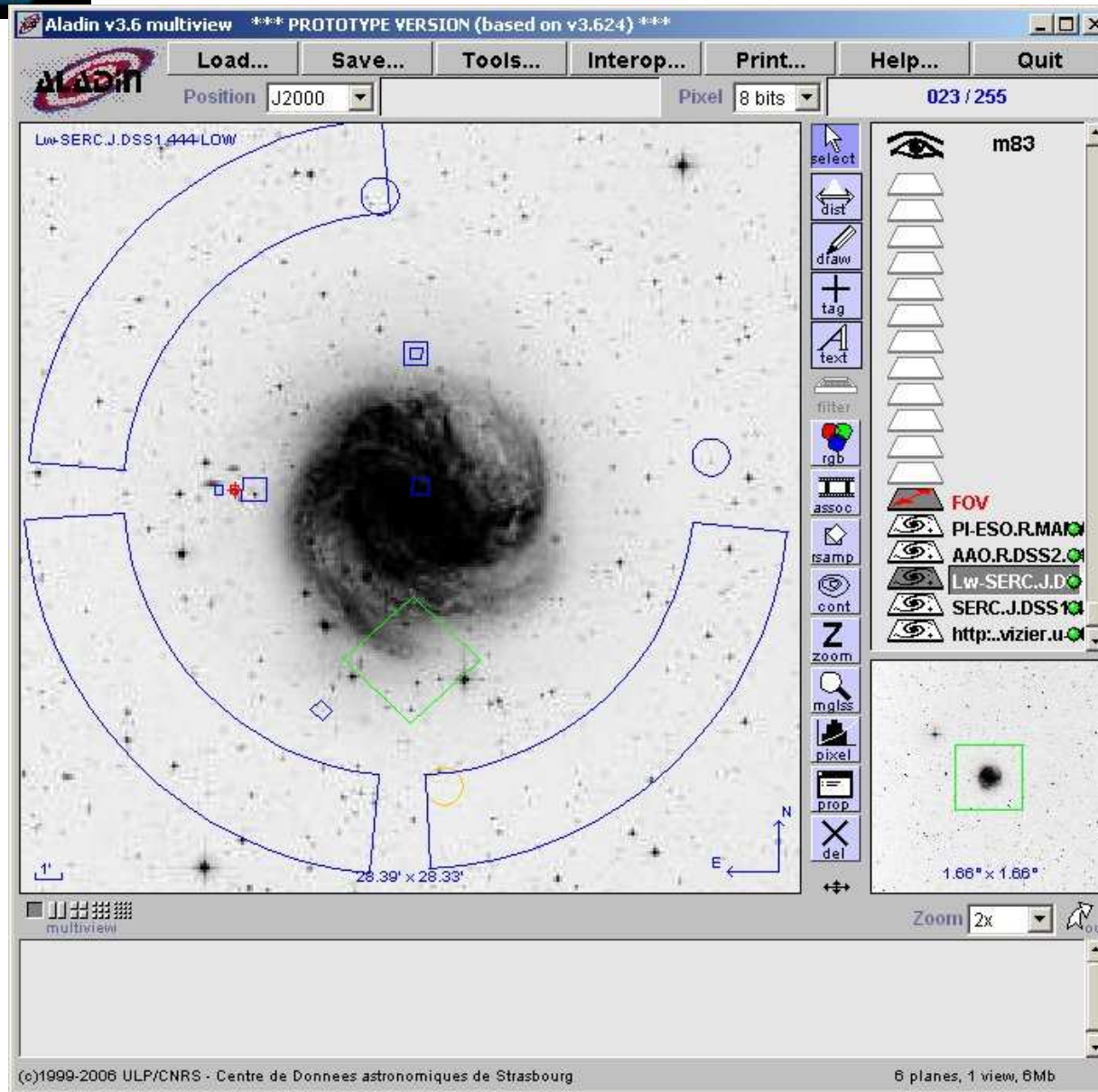
- Displaying footprint of observation and/or instruments on top of Previews in VO portals (eg Aladin)
 - Preparation of observation (first version used by APT)
 - High level data discovery
- What is needed :
 - smart programming (Thanks Thomas and Pierre)
 - A format using VO standards (reusability, interoperability)



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Thomas Boch's demo



FOV attached to a dataset catalog

Aladin v3.6 multiview *** PROTOTYPE VERSION (based on v3.624) ***

Position J2000 Pixel 8 bits 013 / 255

SERC.J.DSS1.444

m83

14.2' x 14.17'

| | | | | |
|-------------|-------------|-------|-----------|----------------------|
| 13:36:39.18 | -29:54:12.5 | -25.0 | WFPC2 FoV | Display Image (FITS) |
| 13:36:59.90 | -29:52:24.1 | 73.8 | WFPC2 FoV | Display Image (FITS) |
| 13:37:07.00 | -29:50:59.0 | 0.0 | WFI FoV | Display Image (FITS) |
| 13:37:44.00 | -29:51:52.0 | 0.0 | SOFI FoV | Display Image (FITS) |

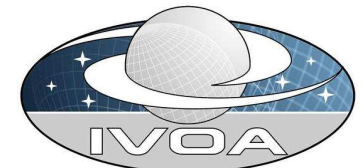
(c)1999-2006 ULP/CNRS - Centre de Donnees astronomiques de Strasbourg 7 planes, 1 view, 7Mb



How to describe FOV for VO clients



- 2 Vo choices for this prototype:
 - VOTABLE (for light parsing in Aladin)
 - Regions are described in compatibility with STC, by utypes.
- Two parts in the description:
 - The FOV instrumental plane (by a tangential plane custom coordiante system)
 - The Instruments contours
- Adapted to independant descriptions or attached to Observation logs or SIA Query response (in Extensions) records
- Additional rendering information was developped, not described here





Description of the tangential plane

A

- We will describe here an independant FOV , which is made of 2 boxes
- Initialization of the RESOURCE for the FOV description using a RESOURCE with the utype dal:fov

```
<RESOURCE ID="FakeInstrFoV" name ="Fake Instrument Field of View" utype="dal:fov" >
```

```
<DESCRIPTION>Ficticious FoV made up of a two identical rectangle"s separated by 5 arcsec. Each rectangle has dimensions 2' x 5'.
```

```
</DESCRIPTION>
```



Description of the tangential plane

B

- 1st step: Definition of the FOV plane, a CARTESIAN flavor for the Coordinate system (projected plane):

<!-- These five records define the Field of View Coordinate projection, flavor, REference position and PA -->

```
<PARAM name="FOV Coord Frame" datatype="char"
  utype="stc:CoordFrame.Cart2DRefFrame.Transform2.pr
  ojection" value="«TAN »"/>
```

```
<PARAM name="FOV Coord Flavor" datatype="char"
  utype="stc:CoordFrame.CoordFlavor.Type"
  value="CARTESIAN"/>
```

Description of the tangential plane

C

```
<GROUP>
<PARAM utype=« stc:AstroCoords.coord-system_id » value=« ICRS-
  TOPO »/>
<PARAM name="RA" ucd="pos.eq.ra;meta.main" datatype="char"
  arraysize="11" unit="h:m:s"
  utype="stc:CoordFrame.CoordRefPos.Position2D.Value2.C1"/>
<PARAM name="DEC" ucd="pos.eq.dec;meta.main" datatype="char"
  arraysize="11" unit=""d:m:s""
  utype="stc:CoordFrame.CoordRefPos.Position2D.Value.C2 »/>
</GROUP>
<PARAM name="PA" ucd="pos.posAng" datatype="float" unit="deg"
  utype="stc:.CoordFrame.Cart2DRefFrame.PositionAngle" />
```


Contour description A

- 2nd step : we will now describe the instrument contours:
- The following table describes the first Box in the FOV plane

```
<TABLE ID="fovT1" name="Field of View 1 part" >
```

- Here we define the REgion type as a box

```
<PARAM name="Region" value="Box"
```

```
utype="char:SpatialAxis.coverage.support.AreaType" />
```

```
<!-- The AstroCoord sys definition allows to define a box with  
sides parallel -->
```

```
<!-- to the "tilted" axes of the system -->
```

Contour description B

- In the four params we define the X and Y offset and size of our rectangular box

```
<PARAM ID="CRO" name="CenterRAOffset" datatype="float" unit="arcsec"
  utype="stc:AstroCoordArea.Region.Box.Center.C1" value="-62.5"/>
<PARAM ID="CDO" name="CenterDecOffset" datatype="float"
  unit="arcsec"
  utype="stc:AstroCoordArea.Region.Box.Center.C2" value="0.0" />
<PARAM ID="SizRA" name="SizeRA" datatype="float" unit="arcsec"
  utype="stc:AstroCoordArea.Region.Box.Size" value="120.0"/>
<PARAM ID="SizDE" name="SizeDE" datatype="float" unit="arcsec"
  utype="stc:AstroCoordArea.Region.Box.Size" value="300.0"/>
</TABLE>
```

Contour description C

- The following lines define a second box in the same FOV

```
<TABLE ID="fovT2" name="Field of View 2 part">  
  <PARAM name="Region" value="Box"  
    utype="char:SpatialAxis.coverage.support.AreaType"/>  
  <PARAM ID="CRO" name="CenterRAOffset" datatype="float" unit="arcsec"  
    utype="stc:AstroCoordArea.Region.Box.Center.C1" value="62.5"/>  
  <PARAM ID="CDO" name="CenterDecOffset" datatype="float"  
    unit="arcsec"  
    utype="stc:AstroCoordArea.Region.Box.Center.C2" value="0.0" />  
  <PARAM ID="SizRA" name="SizeRA" datatype="float" unit="arcsec"  
    utype="stc:AstroCoordArea.Region.:Box.Size" value="120.0"/>  
  <PARAM ID="SizDE" name="SizeDE" datatype="float" unit="arcsec"  
    utype="stc:AstroCoordArea.Region:Box.Size" value="300.0"/>  
</TABLE>
```



And:



- Polygons, Circular regions and Pickles can Also be described
- IVOA note fast ready
- Will be Used for ESO Archive, Aladin server and the APT. Maybe at CFH, and ?



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 - Arnold Rots for usefull discussion and modifying the model to allow description of custom Tangential planes
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