Generic Dataset Observation datamodel

F.Bonnarel with

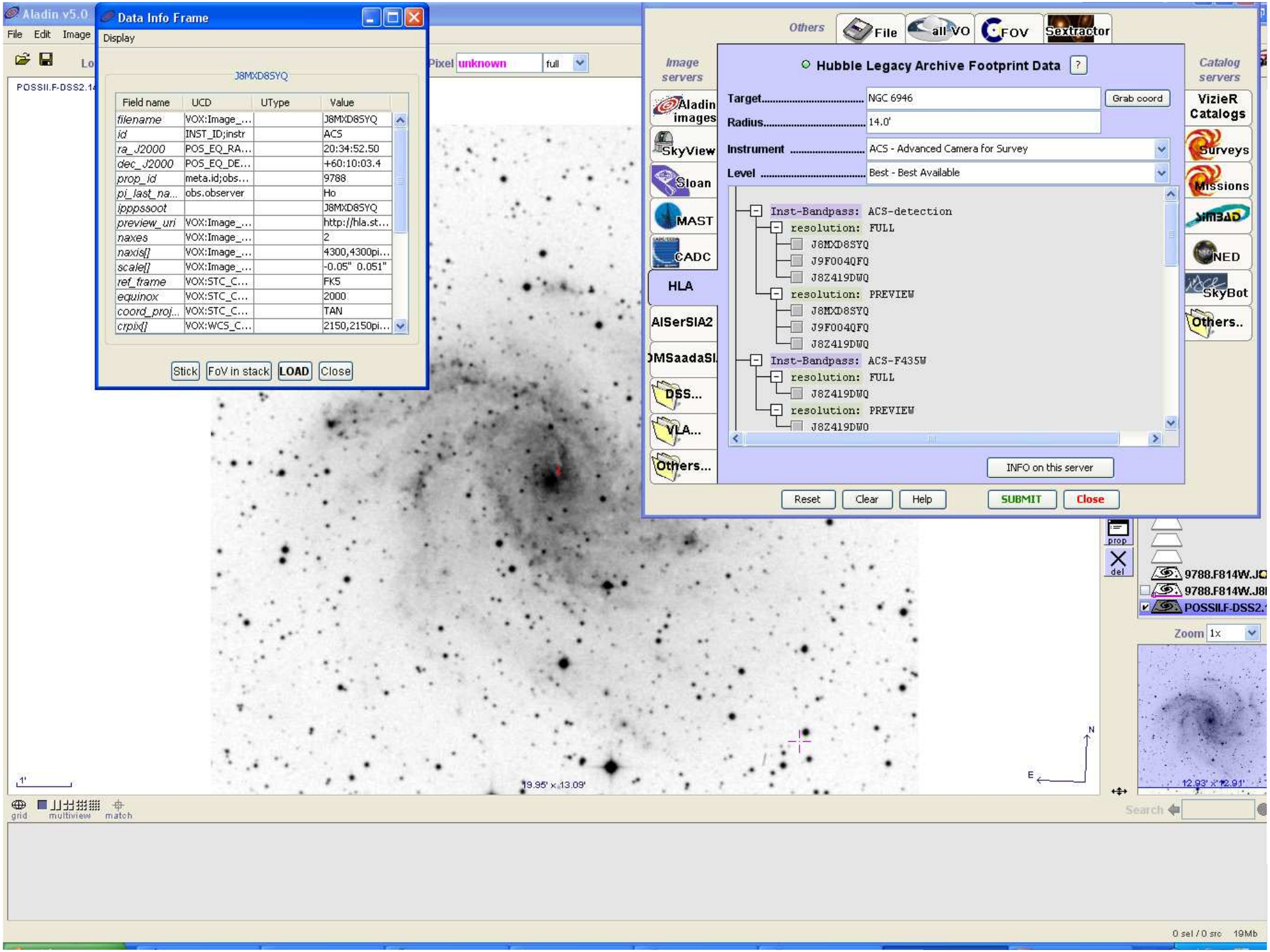
M.Louys,D.Tody,T.Budavari,
G.Greene

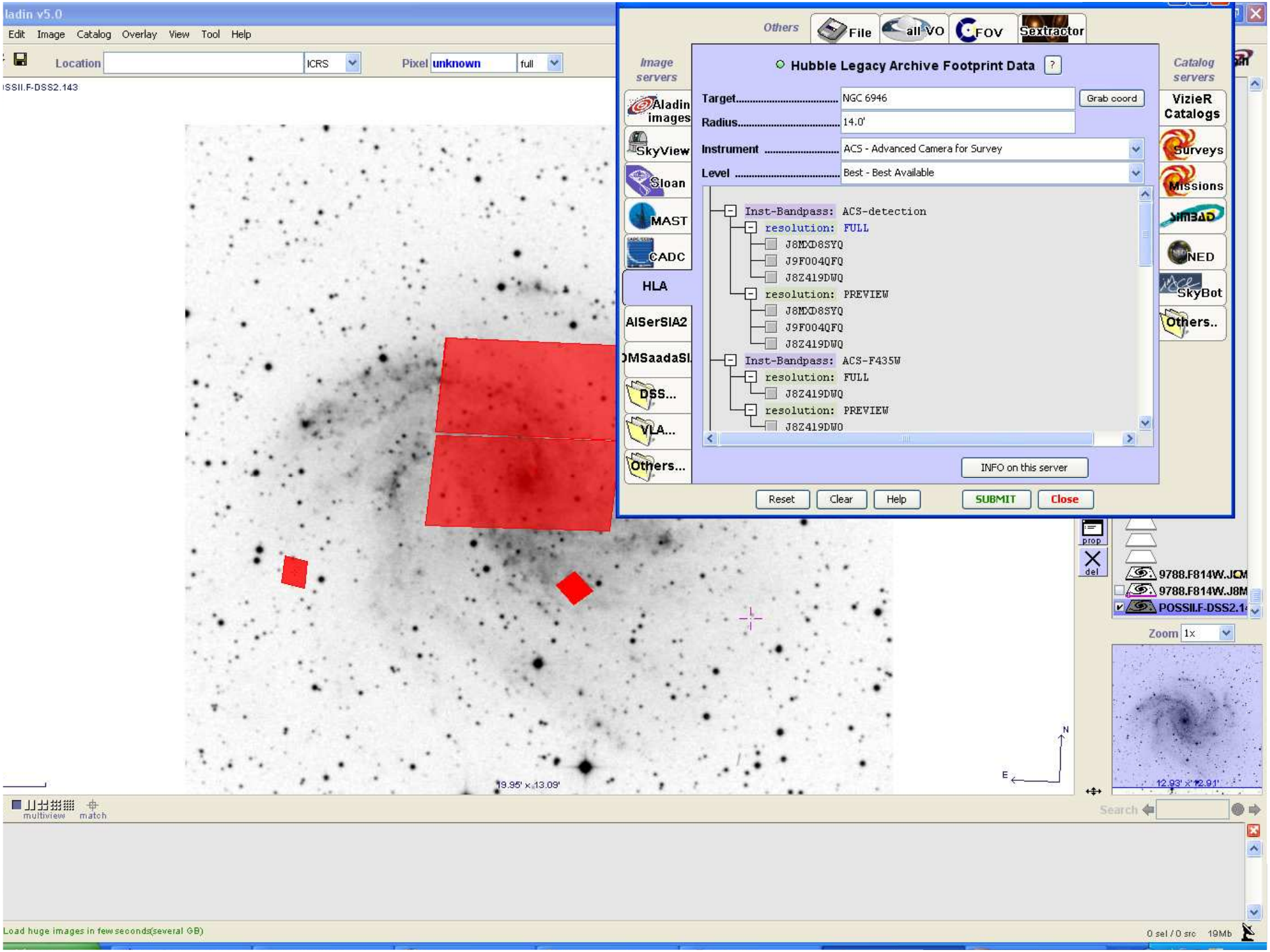
Generic dataset concept

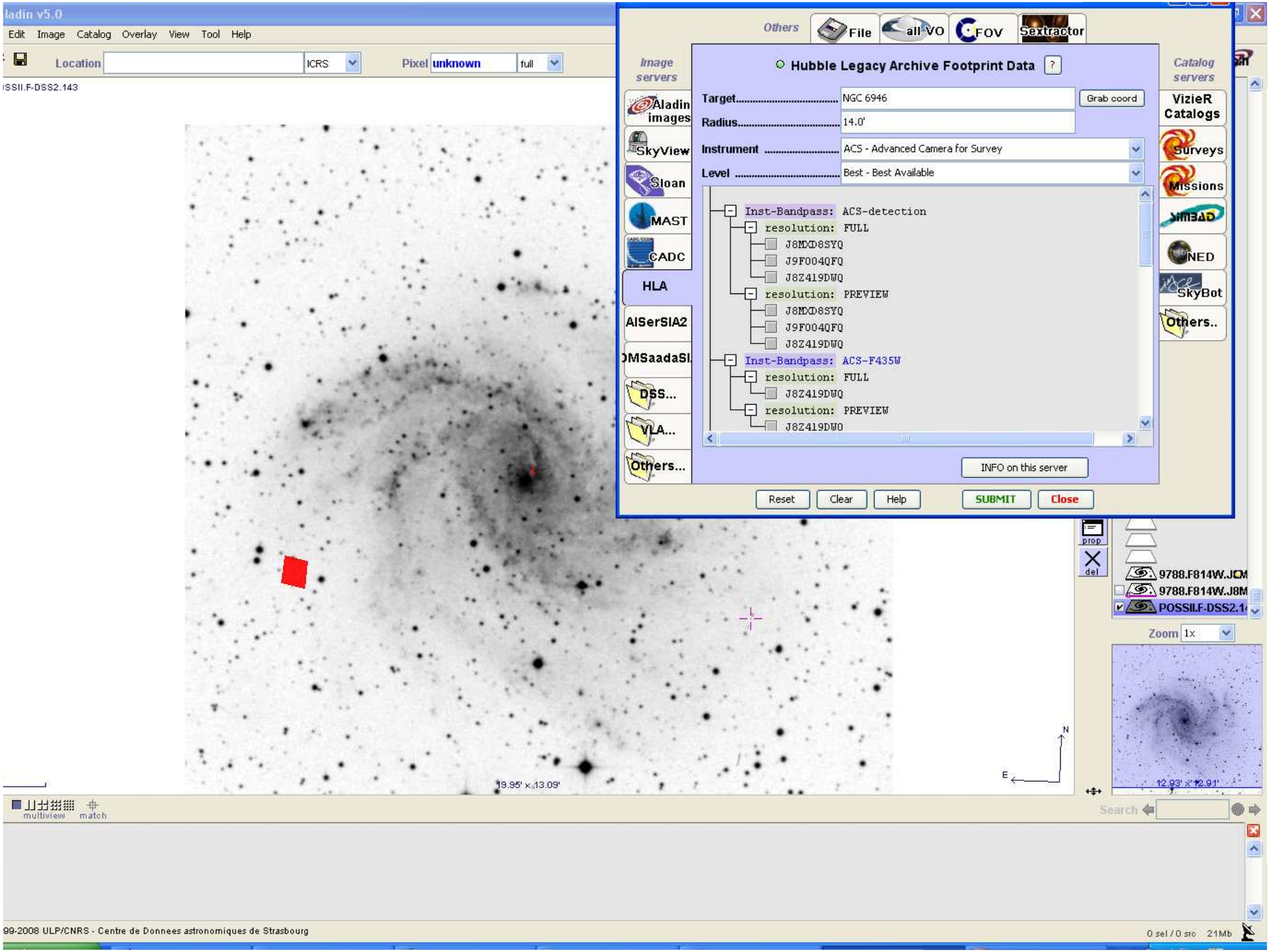
- Metadata:
  - Everything common to all datasets: Access, Curation, DatasetID packages.
    - Everything too complex to be in Typed protocol : High level characterization (FoV, variation maps), Provenance, Complex linking.
- Queries =
  - non type specific (= generic) queries
  - Querying by datamodel (Observation, char) using ADQL+utypes .

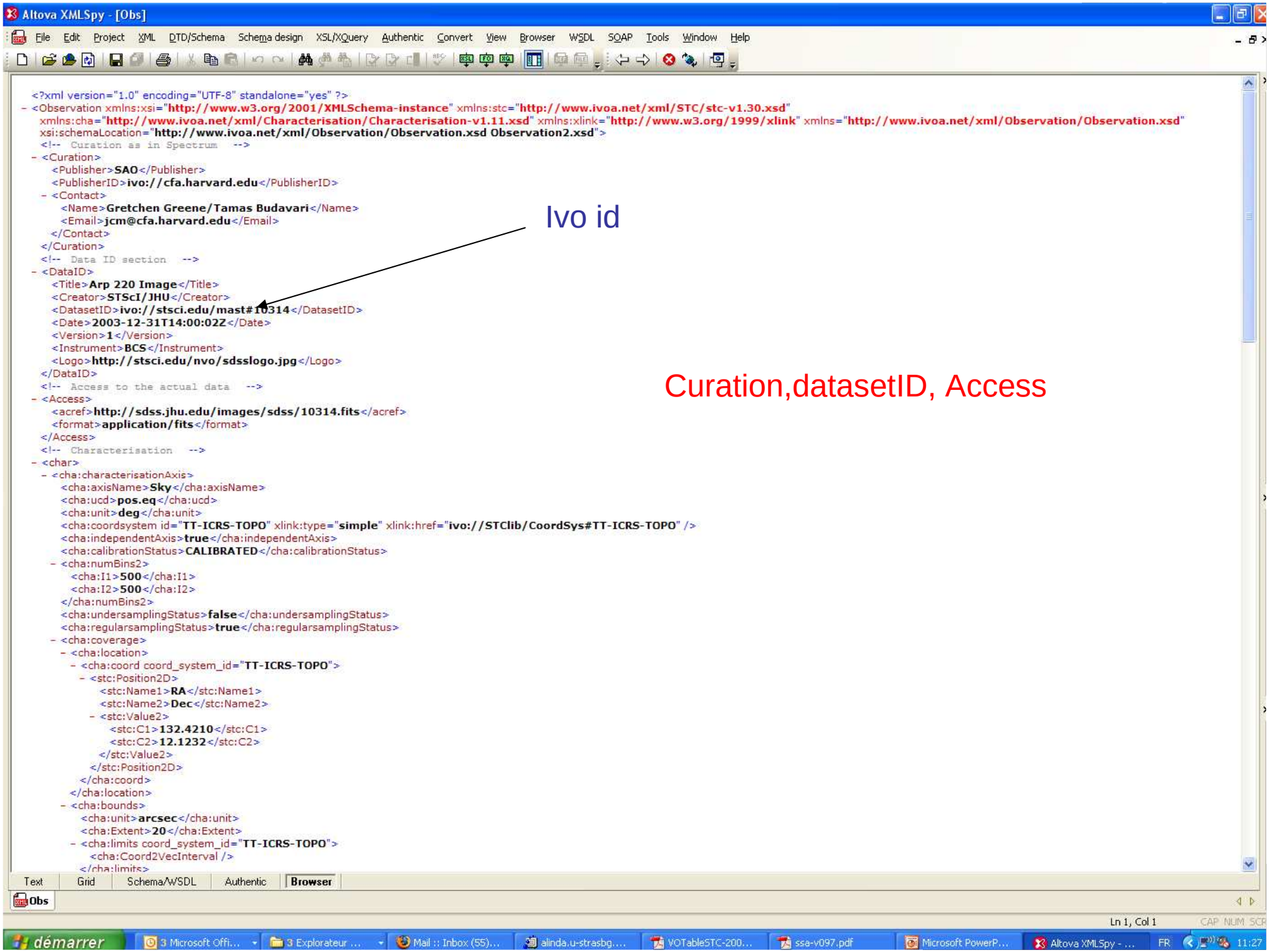
Observation data model

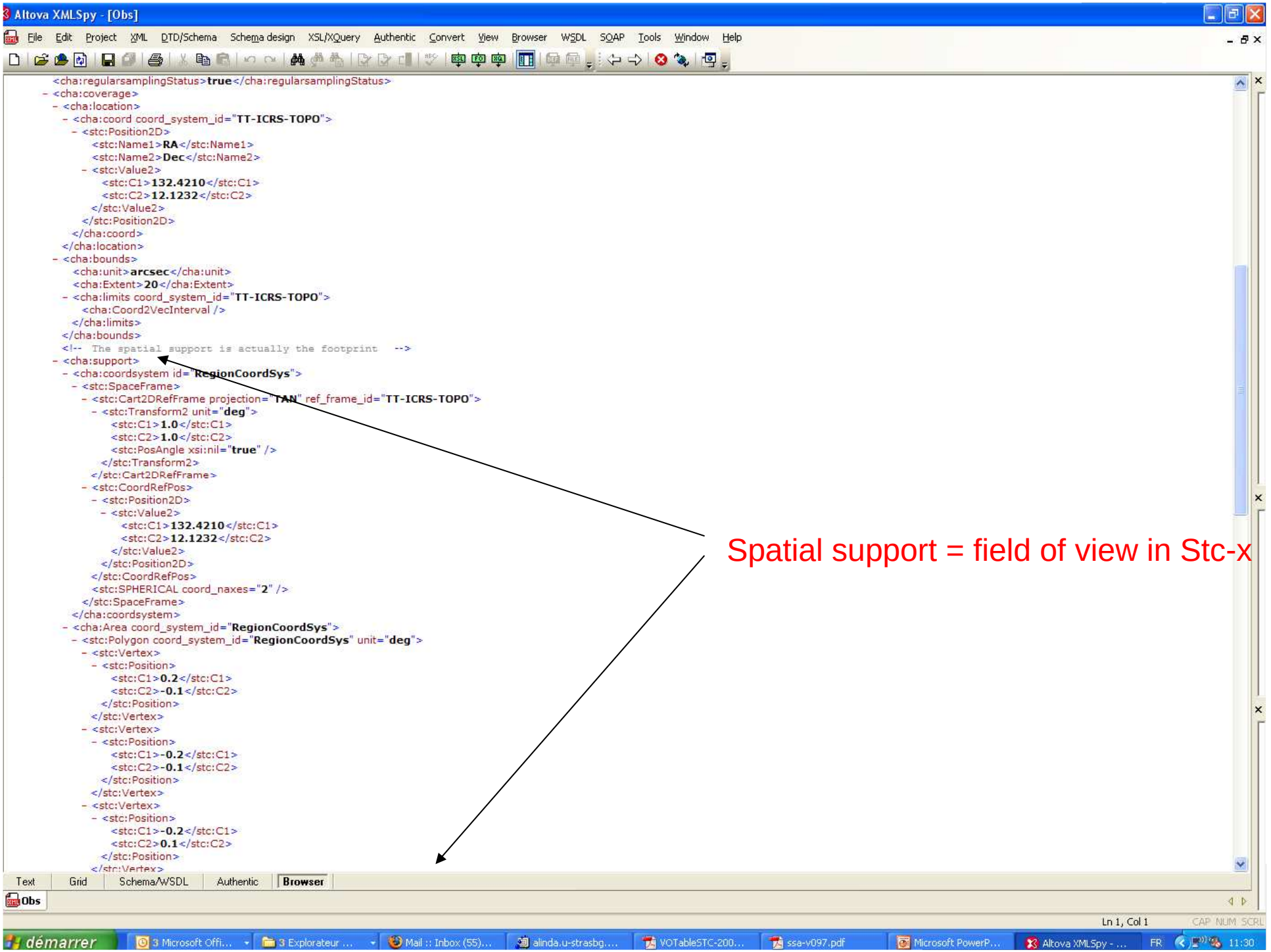
- See more tomorrow (DM session 2)
- UML Diagram and XML schema available
- Hooking basic metadata (DatasetID) to Field Of View (obs:char/coverage.support) or provenance -→ see Tamas slides for connexion with footprint services.
    - DAL Query response version = F O V integrated in the VOTABLE
    - (HLA provides such conversion from the Stc footprint embedded into Observation container to SIA query response extension)
- Provides a frame for complex accesses methods (Access package extensions or DataLinks)

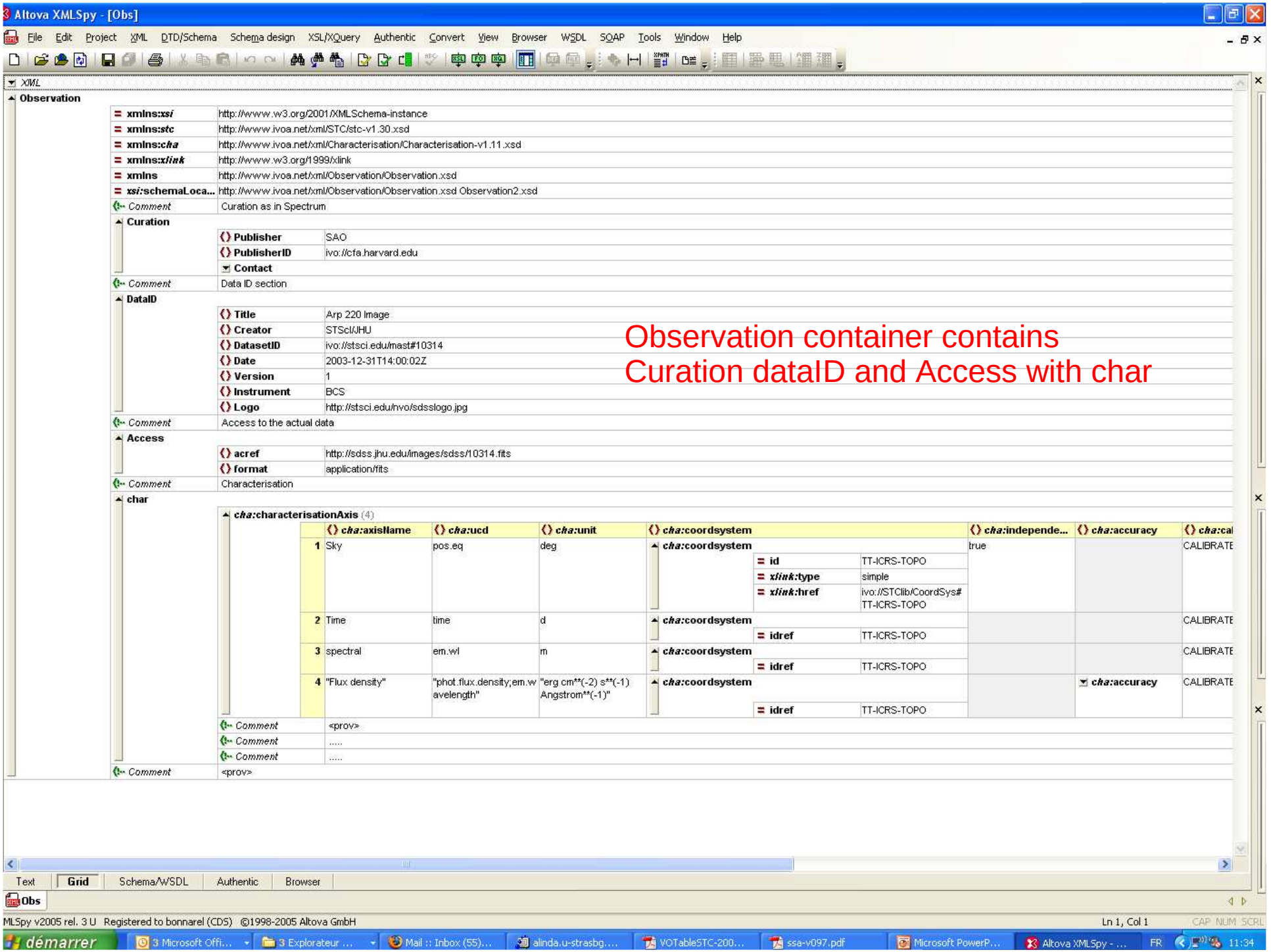

Aladin v5.0
File Edit Image
Data Info Frame
Display
J8MXD8SYQ
Field name | UCD | UType | Value
filename | VOX:Image_... | | J8MXD8SYQ
id | INST_ID;instr | | ACS
ra_J2000 | POS_EQ_RA... | | 20:34:52.50
dec_J2000 | POS_EQ_DE... | | +60:10:03.4
prop_id | meta.id;obs... | | 9788
pi_last_na... | obs.observer | | Ho
ipppssoot | | | J8MXD8SYQ
preview_uri | VOX:Image_... | | http://hla.st...
naxes | VOX:Image_... | | 2
naxis[] | VOX:Image_... | | 4300,4300pi...
scale[] | VOX:Image_... | | -0.05" 0.051"
ref_frame | VOX:STC_C... | | FK5
equinox | VOX:STC_C... | | 2000
coord_proj... | VOX:STC_C... | | TAN
crpix[] | VOX:WCS_C... | | 2150,2150pi...
Stick
FoV in stack
LOAD
Close
Pixel unknown full
POSSII.F-DSS2.14
Others
File
aladin VO
FOV
Sextractor
Image servers
Aladin images
SkyView
Sloan
MAST
CADC
HLA
AlSerSIA2
DSS...
VLA...
Others...
Hubble Legacy Archive Footprint Data
Target..... NGC 6946
Grab coord
Radius..... 14.0'
Instrument ..... ACS - Advanced Camera for Survey
Level ..... Best - Best Available
Inst-Bandpass: ACS-detection
resolution: FULL
J8MXD8SYQ
J9F004QFQ
J8Z419DWQ
resolution: PREVIEW
J8MXD8SYQ
J9F004QFQ
J8Z419DWQ
Inst-Bandpass: ACS-F435W
resolution: FULL
J8Z419DWQ
resolution: PREVIEW
J8Z419DWQ
INFO on this server
Reset
Clear
Help
SUBMIT
Close
Catalog servers
VizieR Catalogs
Surveys
Missions
SIMBAD
NED
SkyBot
Others..
prop
del
9788.F814W.JC
9788.F814W.J8
POSSII.F-DSS2.
Zoom 1x
12.93' x 12.91'
19.95' x 13.09'
N
E
1'
grid
multiview
match
Search
0 sel / 0 src
19Mb


Edit Image Catalog Overlay View Tool Help
Location
ICRS
Pixel unknown
full
Others
File
all VO
FOV
Sextractor
Image servers
Catalog servers
Hubble Legacy Archive Footprint Data
Target
NGC 6946
Grab coord
Radius
14.0'
Instrument
ACS - Advanced Camera for Survey
Level
Best - Best Available
Inst-Bandpass: ACS-detection
resolution: FULL
J8MXD8SYQ
J9F004QFQ
J8Z419DWQ
resolution: PREVIEW
J8MXD8SYQ
J9F004QFQ
J8Z419DWQ
Inst-Bandpass: ACS-F435W
resolution: FULL
J8Z419DWQ
resolution: PREVIEW
J8Z419DWO
INFO on this server
Reset
Clear
Help
SUBMIT
Close
Aladin images
SkyView
Sloan
MAST
CADC
HLA
DSS...
VLA...
Others...
VizieR Catalogs
Surveys
Missions
SIMBAD
NED
SkyBot
Others..
9788.F814W.JOM
9788.F814W.J8M
POSSII.F-DSS2.1
Zoom 1x
19.95' x 13.09'
12.93' x 12.91'
Search
Load huge images in few seconds(several GB)
0 sel / 0 src 19Mb

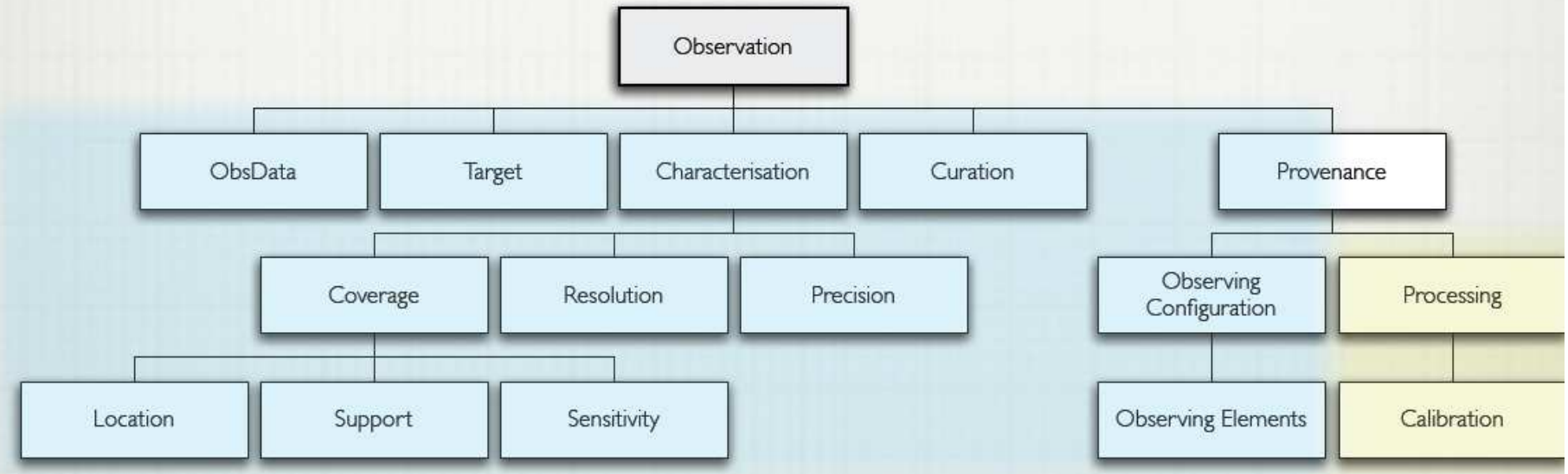

Aladin v5.0
Edit Image Catalog Overlay View Tool Help
Location
ICRS
Pixel unknown
full
Others
File
all VO
FOV
Sextractor
Image servers
Aladin images
SkyView
Sloan
MAST
CADC
HLA
AISerSIA2
DSS...
VLA...
Others...
Hubble Legacy Archive Footprint Data
Target..... NGC 6946
Grab coord
Radius..... 14.0'
Instrument ..... ACS - Advanced Camera for Survey
Level ..... Best - Best Available
Inst-Bandpass: ACS-detection
resolution: FULL
J8MXD8SYQ
J9F004QFQ
J8Z419DWQ
resolution: PREVIEW
J8MXD8SYQ
J9F004QFQ
J8Z419DWQ
Inst-Bandpass: ACS-F435W
resolution: FULL
J8Z419DWQ
resolution: PREVIEW
J8Z419DWO
INFO on this server
Reset
Clear
Help
SUBMIT
Close
Catalog servers
VizieR Catalogs
Surveys
Missions
SIMBAD
NED
SkyBot
Others..
9788.F814W.JOM
9788.F814W.J8M
POSSII.F-DSS2.1
Zoom 1x
19.95' x 13.09'
12.93' x 12.91'
multiview
match
Search
99-2008 ULP/CNRS - Centre de Donnees astronomiques de Strasbourg
0 sel / 0 src 21Mb

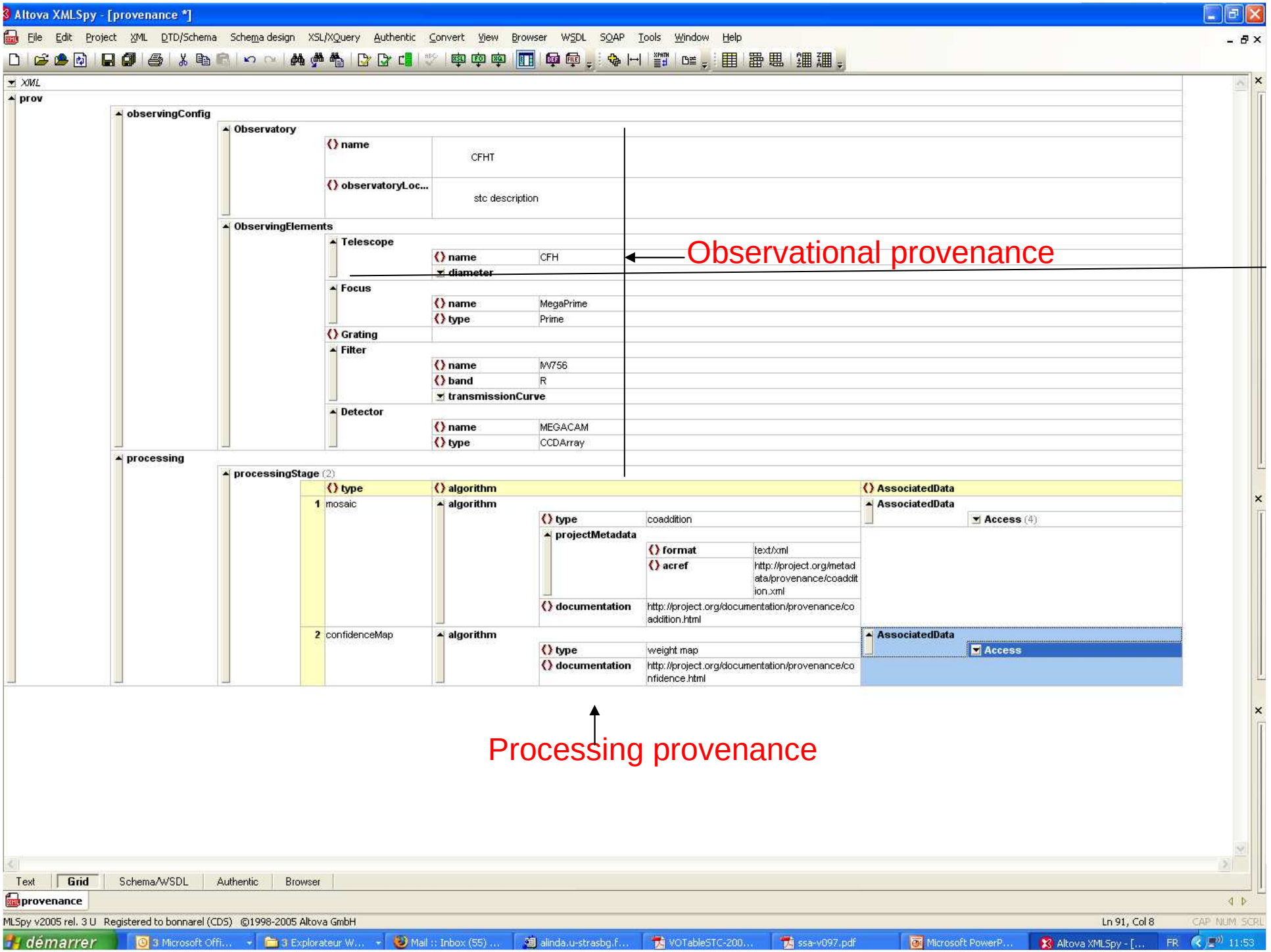

Altova XMLSpy - [Obs]
File Edit Project XML DTD/Schema Schema design XSL/XQuery Authentic Convert View Browser WSDL SOAP Tools Window Help
<?xml version="1.0" encoding="UTF-8" standalone="yes" ?>
<Observation xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance" xmlns:stc="http://www.ivoa.net/xml/STC/stc-v1.30.xsd"
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
Text Grid Schema/WSDL Authentic Browser
Obs
Ln 1, Col 1
démarrer
3 Microsoft Offi...
3 Explorateur ...
Mail :: Inbox (55)...
alinda.u-strasbg....
VOTableSTC-200...
ssa-v097.pdf
Microsoft PowerP...
Altova XMLSpy - ...
FR
11:27


Altova XMLSpy - [Obs]
File Edit Project XML DTD/Schema Schema design XSL/XQuery Authentic Convert View Browser WSDL SOAP Tools Window Help
<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>
Text Grid Schema/WSDL Authentic Browser
Obs
Ln 1, Col 1
CAP NUM SCRL
démarrer
3 Microsoft Offi...
3 Explorateur ...
Mail :: Inbox (55)...
alinda.u-strasbg....
VOTableSTC-200...
ssa-v097.pdf
Microsoft PowerP...
Altova XMLSpy - ...
FR
11:30
Spatial support = field of view in Stc-x


Altova XMLSpy - [Obs]
File Edit Project XML DTD/Schema Schema design XSL/XQuery Authentic Convert View Browser WSDL SOAP Tools Window Help
XML
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:schemaLoca... http://www.ivoa.net/xml/Observation/Observation.xsd Observation2.xsd
Comment Curation as in Spectrum
Curation
Publisher SAO
PublisherID ivo://cfa.harvard.edu
Contact
Comment Data ID section
DataID
Title Arp 220 Image
Creator STScI/JHU
DatasetID ivo://stsci.edu/mast#10314
Date 2003-12-31T14:00:02Z
Version 1
Instrument BCS
Logo http://stsci.edu/nvo/sdsslogo.jpg
Comment Access to the actual data
Access
acref http://sdss.jhu.edu/images/sdss/10314.fits
format application/fits
Comment Characterisation
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 true CALIBRATE
id TT-ICRS-TOPO
xlink:type simple
xlink:href ivo://STClib/CoordSys#TT-ICRS-TOPO
2 Time time d cha:coordsystem CALIBRATE
idref TT-ICRS-TOPO
3 spectral em.wl m cha:coordsystem CALIBRATE
idref TT-ICRS-TOPO
4 "Flux density" "phot.flux.density;em.wavelength" "erg cm**(-2) s**(-1) Angstrom**(-1)" cha:coordsystem cha:accuracy CALIBRATE
idref TT-ICRS-TOPO
Comment <prov>
Comment .....
Comment .....
Comment <prov>
Observation container contains
Curation dataID and Access with char
Text Grid Schema/WSDL Authentic Browser
Obs
MLSpy v2005 rel. 3 U Registered to bonnarel (CDS) ©1998-2005 Altova GmbH
Ln 1, Col 1
CAP NUM SCRL
démarrer
3 Microsoft Offi...
3 Explorateur ...
Mail :: Inbox (55)...
alinda.u-strasbg....
VOTableSTC-200...
ssa-v097.pdf
Microsoft PowerP...
Altova XMLSpy - ...
FR
11:34

OBSERVATION DM 2003-2006




Altova XMLSpy - [provenance *]
File Edit Project XML DTD/Schema Schema design XSL/XQuery Authentic Convert View Browser WSDL SOAP Tools Window Help
XML
prov
observingConfig
Observatory
name
CFHT
observatoryLoc...
stc description
ObservingElements
Telescope
name
CFH
diameter
Focus
name
MegaPrime
type
Prime
Grating
Filter
name
MV756
band
R
transmissionCurve
Detector
name
MEGACAM
type
CCDArray
Observational provenance
processing
processingStage (2)
type
algorithm
AssociatedData
1 mosaic
algorithm
type
coaddition
projectMetadata
format
text/xml
acref
http://project.org/metadata/provenance/coaddition.xml
documentation
http://project.org/documentation/provenance/coaddition.html
AssociatedData
Access (4)
2 confidenceMap
algorithm
type
weight map
documentation
http://project.org/documentation/provenance/confidence.html
AssociatedData
Access
Processing provenance
Text Grid Schema/WSDL Authentic Browser
provenance
MLSpy v2005 rel. 3 U Registered to bonnarel (CDS) ©1998-2005 Altova GmbH
Ln 91, Col 8
CAP NUM SCRL
démarrer
3 Microsoft Offi...
3 Explorateur W...
Mail :: Inbox (55) ...
alinda.u-strasbg.f...
VOTableSTC-200...
ssa-v097.pdf
Microsoft PowerP...
Altova XMLSpy - [...
FR
11:53