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IFU Data in the Virtual Observatory

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3 Cornerstones for 3D data in VO

1. Data Model
2. Data Access Services
3. Client Applications

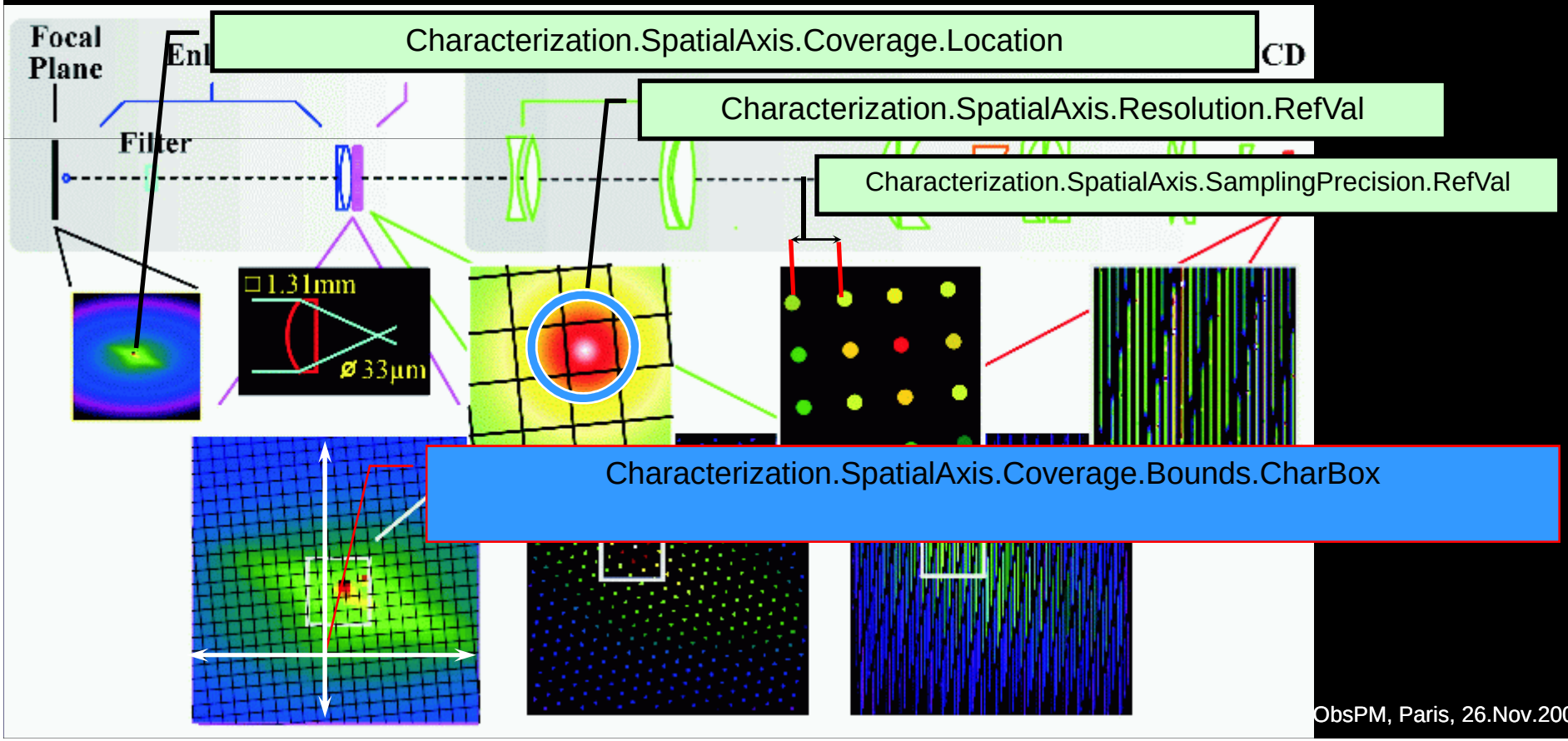
Characterisation DM

The basic part of the most general data model: Observation DM
Provides a physical characterisation of a dataset

Level 1	Coverage	Resolution	Sampling
Level 2	Coverage	Resolution	Sampling
Level 3	Coverage	Resolution	Sampling
Level 4	Coverage	Resolution	Sampling
Spatial (pos)	Map	Map	Map
Temporal (time)	Map	Map	Map
Spectral (em)	Map	Map	Map
Observable (phot)	Map	Map	Map

Characterising IFU datasets

Only first two levels (Location/Ref.Value and Bounds) should be provided for the whole dataset



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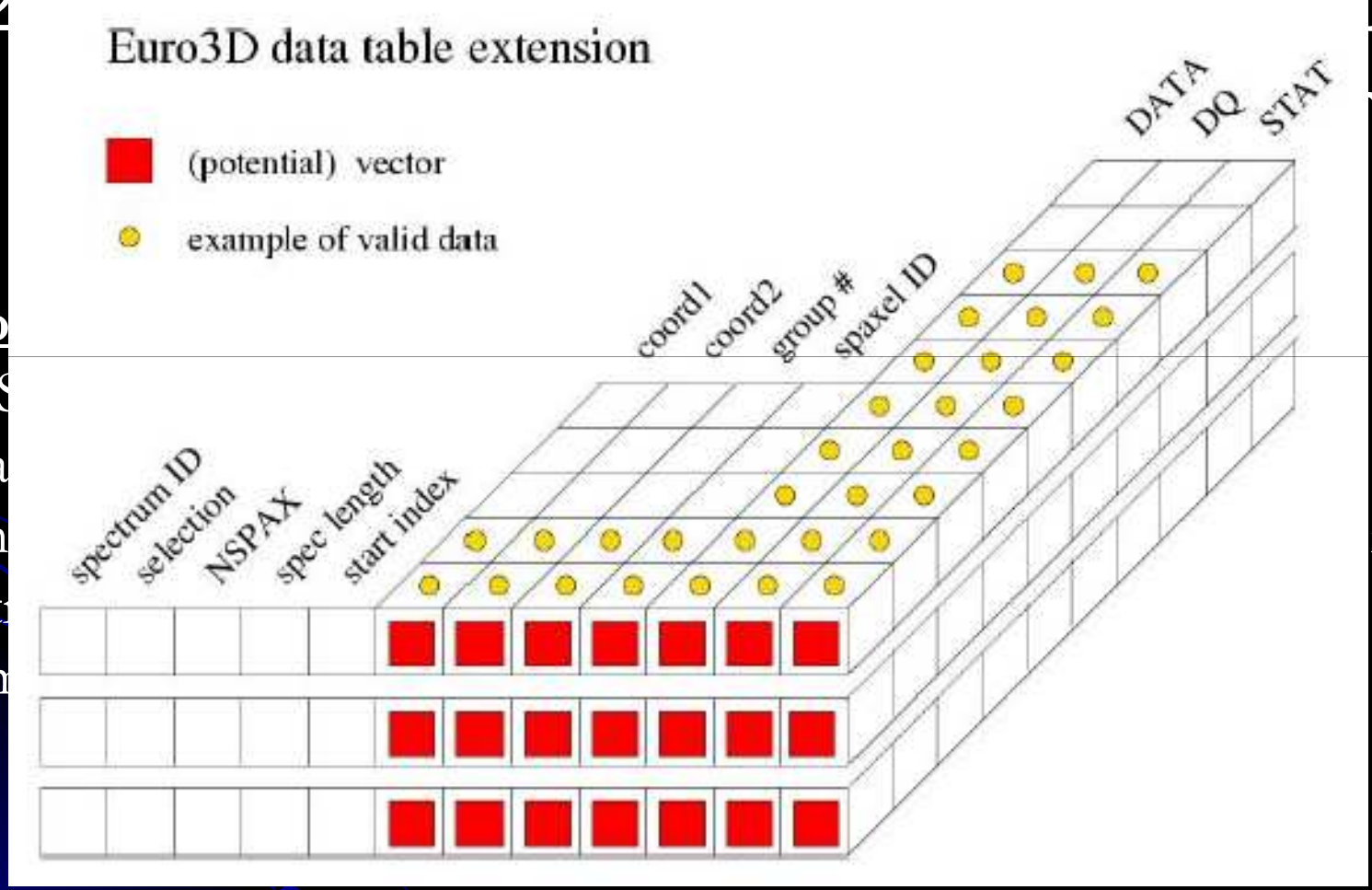
Storing 3D Data in FITS

- Pure 3D data cube (for IFP data and for some IFU)
- 2D image (one spectrum per row) + binary table ⇨



Euro

•FITS

•Bina

•Som r all

spect

param

1. Giraffe Archive at ObsPM

- Delivery of Euro3D FITS format and “stacked spectra” for reduced observations made with FLAMES/Giraffe at ESO VLT in MEDUSA mode (multi-object spectroscopy)
- SSAP access to spectra individual objects (extracted fibers)
- More data (IFU/ARGUS) are coming…

2. ASPID-SR at SAO RAS

- Direct querying of the Characterisation DM metadata stored in PostgreSQL database with native XML support using SQL+XPath
- SSAP interface on top of it
- Delivery of Euro3D FITS + 3D FITS cubes for ~600 datasets including ~100 MPFS IFU datasets, ~70 IFP data cubes, long slit spectra (the rest)
- WEB-2.0 interface
- Highest possible integration of the archive WEB-site with existing VO client applications

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VO-Paris Euro3D Client

- Open source tool, Java 5+
- Available as applet and Java WebStart
- I/O of Euro3D FITS files (local or URL)
- Extraction of spectra for individual fibers
- Export of extracted spectra in the VOTable serialization of the IVOA Spectral DM 1.0
- Export of the catalogue of fiber positions as VOTable 1.1
- Communication with CDS Aladin and ESA VOSpec using PLASTIC messages for data visualisation

http://vo.obspm.fr/tools/Euro3D/

Summary

Our implementation is yet rather simple, however it demonstrates how existing VO standards and tools can be integrated to provide access to complex datasets

How this all works… (ASPID-SR)