Data Models WG

Session 1

- XML Schema Guidelines
- Converging the Models
- Observation and Characterization

Session 2

- Catalogs
- Spacetime Coordinates
XML Schema Guidelines

How do we go from UML to XML?

- UML to XML automatic tools vs hand-crafting
- Choice groups? Substitution groups?
- Extension vs restriction
- Validation tools
- Splitting into multiple xsd files
- The importance of instance examples
Converging the Models

Advanced DM efforts:

- Quantity (Thomas, Berry, Dowler)
- Observation (Micol, Giaretta, Louys, Bonnarel)
- Characteri(z/s)ation (Bonnarel, Louys)
- Space-Time Coords (STC) (Rots)

How much should these models make use of each other?
Converging the Models (2)

I believe there is a natural hierarchy:

- STC Coordinate and Frame objects should be built on Quantity and Quantity Frame objects
- STC Areas should be special cases of a more general Interval quantity
- Characterization involves simplified use of ideas that are present in STC
Converging the Models (3)

CDS proposal: to reduce buy-in, make Characterization largely independent of STC and Quantity, define simple objects which do the same job.

My proposal: Include in Characterization definition self-contained toy versions of STC and Quantity, as simple as possible to give what is needed.

These would be instance-compatible with full models
Instance Example (char2.xml)

```xml
<?xml version="1.0" encoding="UTF-8"?>

<characterisation>
  <resolution>
    <frame idref="eq" xsi:type="FrameRef"/>
    <value>5.2</value>
  </resolution>
  <resolution>
    <frame idref="wl" xsi:type="FrameRef"/>
    <value>0.5</value>
  </resolution>
  <sampling_precision>
    <frame xsi:type="Frame"><ucd>pos.eq</ucd><unit>pixel</unit><frame><value>0.02</value><float/></frame>
    <sampling_precision>
      <frame idref="wl" xsi:type="FrameRef"/>
      <value>0.25</value>
    </sampling_precision>
  </coverage>
  <location>
    <coordinate size="2">
      <frame id="eq" xsi:type="Frame"><ucd>pos.eq</ucd><unit>deg</unit><frame><value>28.4</value><value>-20.0</value></frame>
      <frame id="wl" xsi:type="Frame"><ucd>em.wl</ucd><unit>Angstrom</unit><frame><value>4500.2</value><error>0.28</error></frame>
    </coordinate>
    <coordinates ref="CS"/>
  </location>
  <bounds>
    <limits size="2">
      <frame idref="eq" xsi:type="FrameRef"/>
      <values><min>28.342</min><max>28.481</max>
    </limits>
    <limits hi_include="false">
      <frame idref="wl" xsi:type="FrameRef"/>
      <values><min>4402.1</min><max>7200.8</max></values>
    </limits>
  </bounds>
  <support/>
  <sensitivity/>
</coverage>
</characterisation>
```

---

**STC COORDSYS**

- `<timeFrame>`
- `<GEOCENTER/>`
- `<spaceFrame>`
- `<ICRS/>` `<BARYCENTER/>` `<SPHERICAL naxes="2"/>` `<spectralFrame>` `<HELIOLCENTER/>`