TimeSeries Annotation in VOTable

- Goal :
  - simple annotation of « scalar » TimeSeries : lightcurve, radial velocity curve
    - Availability/identification of required metadata
  - Advertizing it's a « time series » / lightcurve
  - Identify role of FIELDS in the TABLE and link them to metadata (frames)
  - Tackle multi filter case

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<COOSYS/> , <TYMESYS> +

```
<GROUP name="filtersys" ID="phot_sys" ucd="phot" utype="timeseries:PhotometryPoint" />
<DESCRIPTION>Photometric system description </DESCRIPTION>
<PARAM name="uniqueIdentifier" ucd="meta.id;instr.filter"
utype="photDM:PhotometryFilter.identifier"
datatype="char" unit="" value="Palomar/ZTF.g"/>
<PARAM name="zeroPointFlux" ucd="phot.mag;arith.zp"
utype="photDM:PhotCal.zeroPoint.flux.value"
datatype="float" unit="Jy" value="3963.97"/>
<PARAM name="magnitudeSystem" ucd="meta.code"
utype="photDM:PhotCal.magnitudeSystem.type"
datatype="char" unit="" value="Vega"/>
<PARAM name="effectiveWavelength" ucd="em.wl.effective"
utype="photDM:PhotometryFilter.spectralLocation.value"
datatype="float" unit="Angstrom" value="4722.74"/>
</GROUP>
```

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```
<TABLE name="TIMESERIES" utype="timeseries">
<DESCRIPTION>Light curve in filter zg </DESCRIPTION>
<FIELD datatype="double" name="hjd" ucd="time.epoch;meta.main"
unit="d" ref="timesys">
<DESCRIPTION>Heliocentric Julian date </DESCRIPTION>
</FIELD>
<FIELD datatype="float" name="mag" ucd="phot.mag;em.opt" unit="mag"
ref="phot_sys">
<DESCRIPTION>Magnitude</DESCRIPTION>
</FIELD>
<FIELD datatype="float" name="magerr" ucd="stat.error;phot.mag;em.opt"
unit="mag" ref="phot_sys">
<DESCRIPTION>Uncertainty in mag measurement </DESCRIPTION>
</FIELD>
```

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```
<RESOURCE>
<TABLE name="TIMESERIES" utype="timeseries">
<DESCRIPTION>Light curve in filter G </DESCRIPTION>
<FIELD datatype="double" name="obs_time" ucd="time.epoch" unit="d"
ref="time_frame"/>
<FIELD datatype="float" name="flux" ucd="phot.flux;em.opt.V"
unit="s**-1" ref="phot_sys-G"/>
<FIELD datatype="float" name="mag" ucd="phot.mag;em.opt.V" unit="mag"
ref="phot_sys-G"/>
<FIELD datatype="float" name="flux_error"
ucd="stat.error;phot.flux;em.opt.V" unit="s**-1"
ref="phot_sys-G"/>
<DATA>
<TABLEDATA>
...
</TABLEDATA>
</DATA>
</TABLE>
<TABLE name="TIMESERIES" utype="timeseries">
<DESCRIPTION>Light curve in filter Gbp </DESCRIPTION>
<FIELD datatype="double" name="obs_time" ucd="time.epoch" unit="d"
ref="time_frame"/>
<FIELD datatype="float" name="flux" ucd="phot.flux;em.opt.V"
unit="s**-1" ref="phot_sys-Gbp"/>
<FIELD datatype="float" name="mag" ucd="phot.mag;em.opt.V" unit="mag"
ref="phot_sys-Gbp"/>
<FIELD datatype="float" name="flux_error"
ucd="stat.error;phot.flux;em.opt.V" unit="s**-1"
ref="phot_sys-Gbp"/>
<DATA>
<TABLEDATA>
...
```

TimeSeries Annotation in VOTable

- Discussion
  - Use a new FILTERSYS element instead of a GROUP
  - Add source or target generic data annotated by CAB-MSD
  - Advertizing it is a TimeSeries upper in the VOTable
  - Use of explicite « rôle in the model » tagging instead of implicit inferred from UCD
    - GROUP / utypes
    - Vodml-lite for complex cases ?

      But where is the model ? CAB-MSD-like ? Spectrum-like ?
  - Use other VOTable solutions than the multi-tables for multi-filter data