Cube Data Model

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Introduction

- **Sept. 2013: Begin this phase of Image/Cube**
  - Picks up prior work by Doug Tody, Francois Bonnarel
  - Define model using common framework of core models (Obs-Dataset, Char, STC)

- **Nov. 2013: ImageDM first draft uploaded to twiki (DT)**
  - Suitable to support parallel SIAV2 work.

- **Nov. - Jan 2014: Targeted group discussions**
  - Refine 'areas of concern' for model components (Dataset, Observation, Provenance, etc)

- **May 2014: CubeDM presented in Madrid**
  - Using/extending current models Char-1.13, STC-1.33
  - Creating separate Observation-Dataset packages

Next step

- Decision made to revise STC
  - Incorporate into cube model until official release
  - Coordinate development to maximize consistency

- Primary goals
  - Resolve issues identified in Cube model.
    (Coordinate hierarchy, Error model, Transform integ.)
  - Improve 'separation of concerns' for STC components
  - Build using same base types (VO-DML ivoa types)
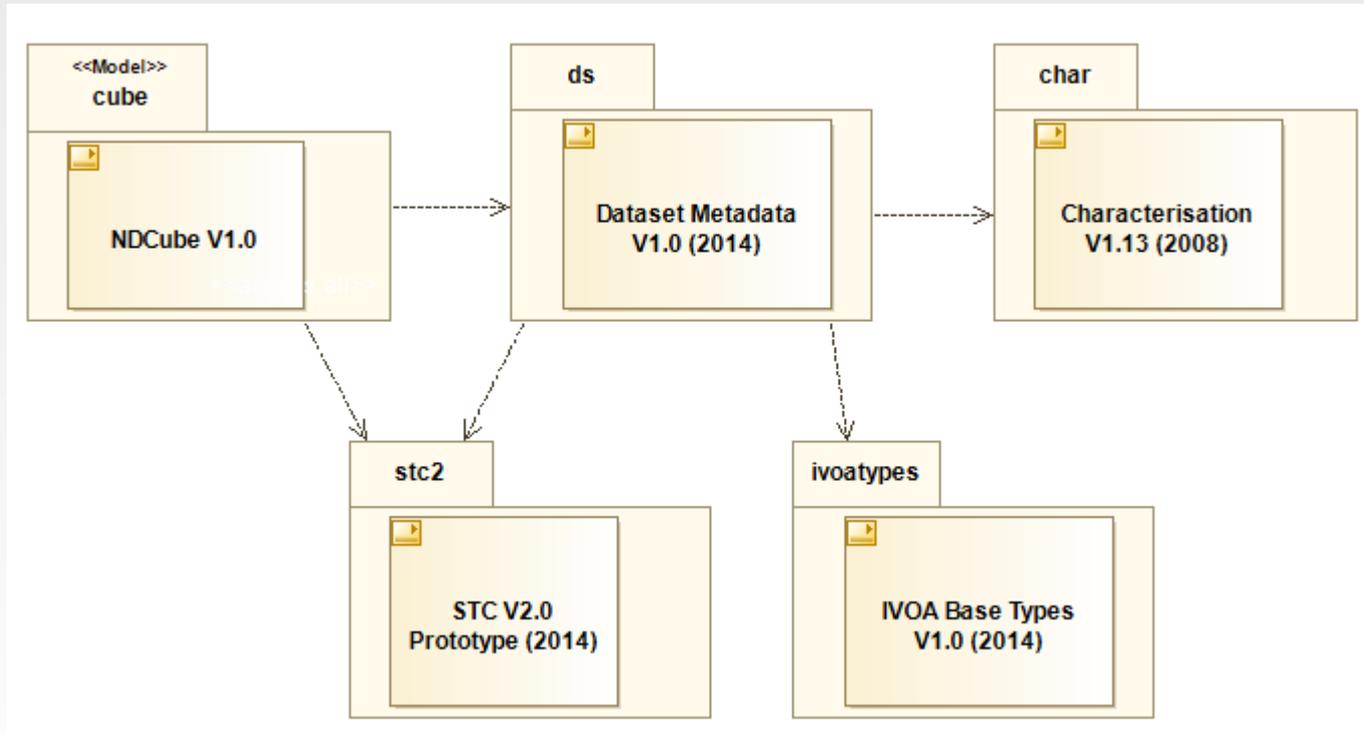 - Model using VO-DML practices.

Toward STC-2

- This work contains a prototype of the STC-2 model being developed by Arnold Rots.

  - Close collaboration has resulted in rapid progress.

  - The prototype here is consistent with STC-2 framework

  - Arnold continues to refine and improve on this.

- Following VO-DML practices has been VERY helpful in this process by:

  - Providing concrete definitions for relations, objects, datatypes. Can apply 'litmus test' to aid decisions.

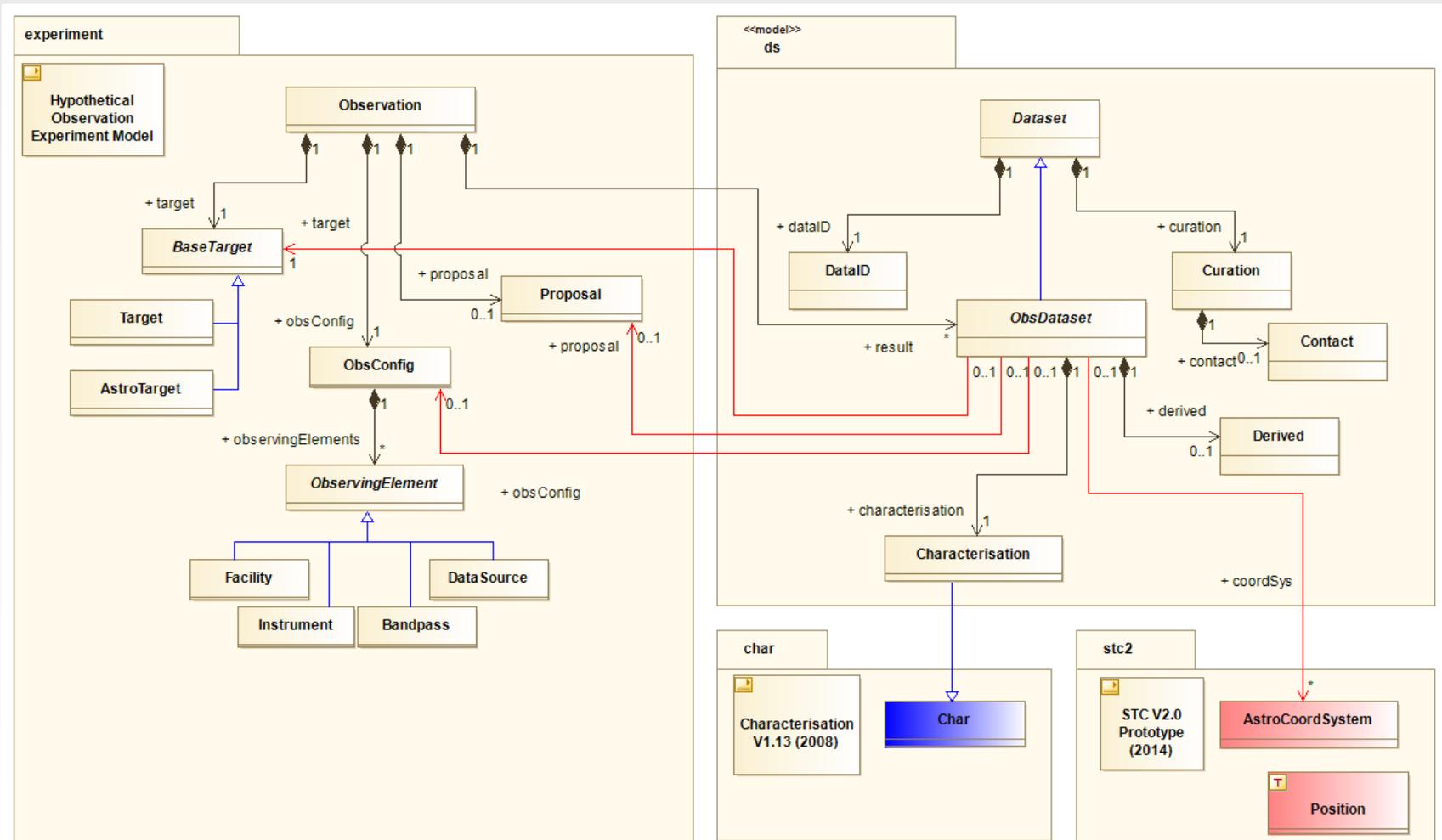 - Providing rules for relations, which guides model structure.

CubeDM draft

- Revised draft submitted to DM mail list 2014-10-01
- Updated UML and document files in Volute repository
  - http://volute.googlecode.com/svn/trunk/projects/dm/CubeDM-1.0/
- Updated twiki with new section for comment threads
  - http://wiki.ivoa.net/twiki/bin/view/IVOA/ImageDM

- Formally separated models
  - Dataset Metadata: reusable core model components including prototype STC-2
  - N-Dimensional Cube: Image and Sparse cubes
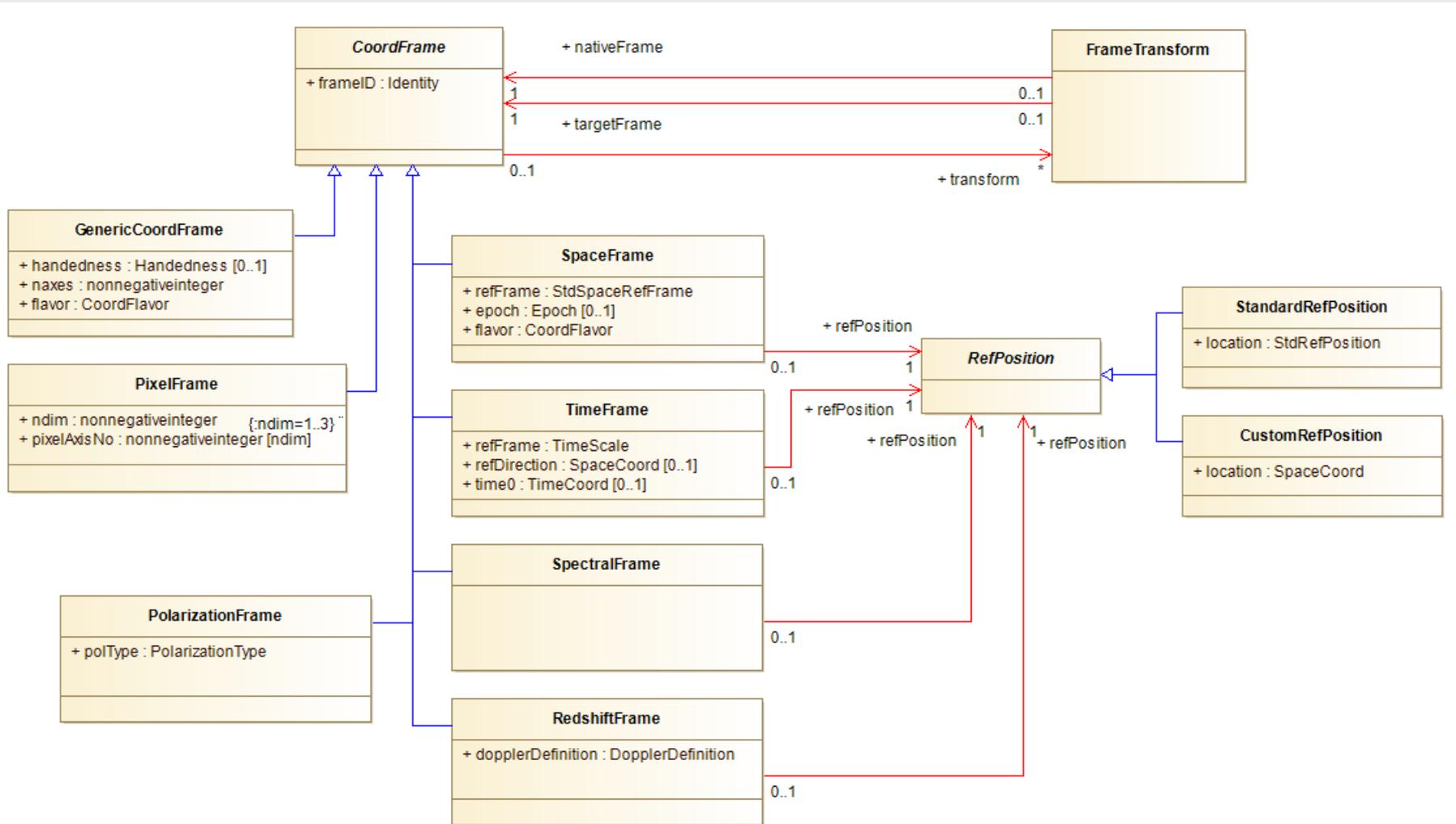
Diagrams: Model dependencies
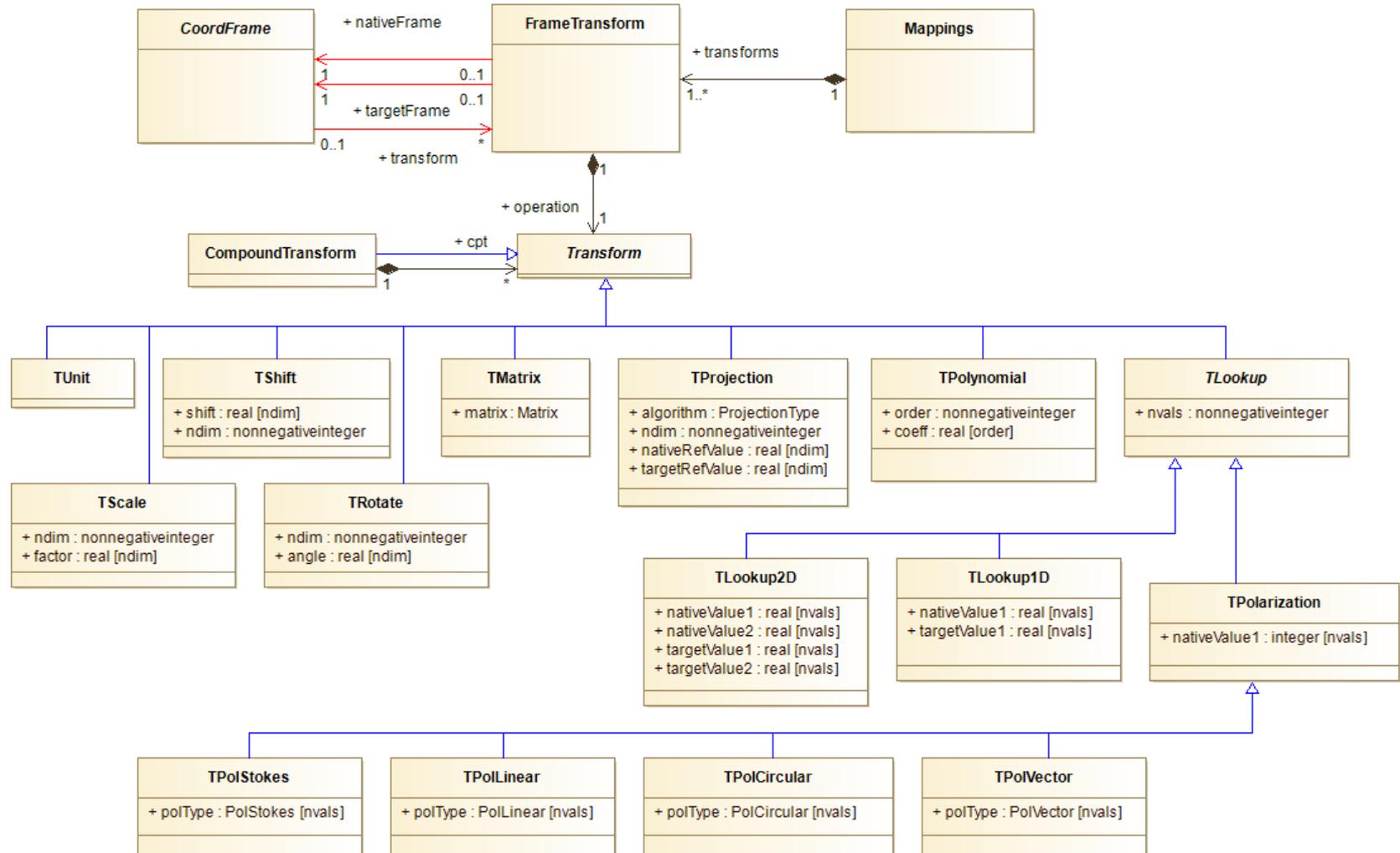
Diagrams: Observation-Dataset
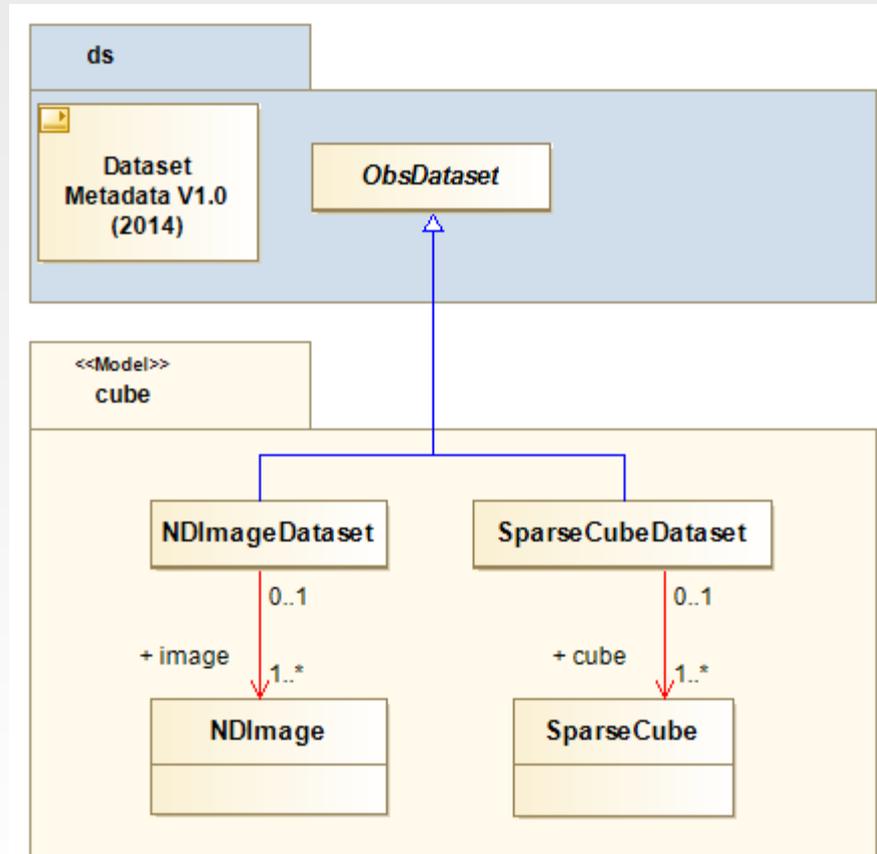
Diagrams: STC2 Frames
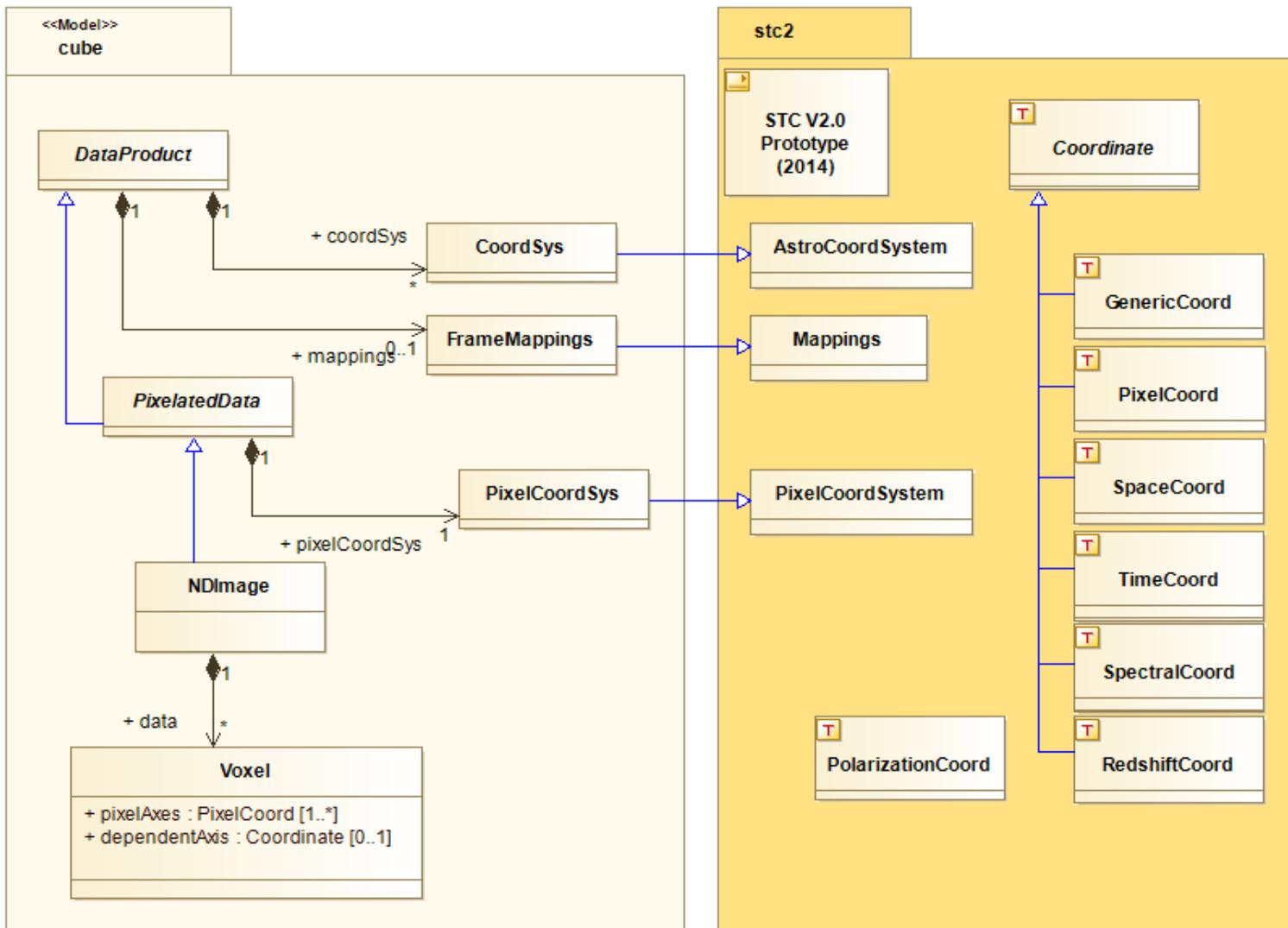
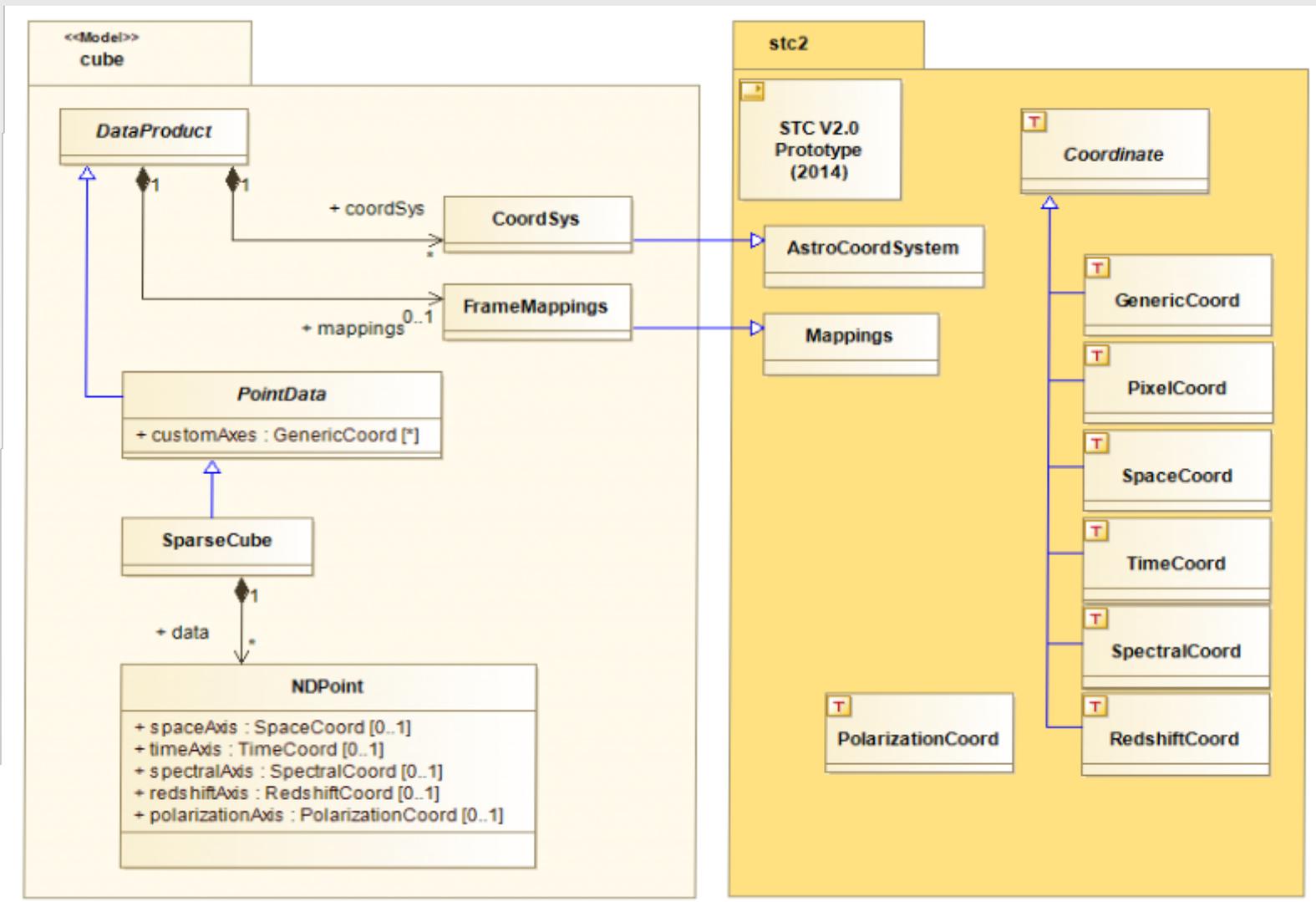# Diagrams: STC2 Transforms

Diagrams: Cube Datasets

Diagrams: NDImage

Diagrams: SparseCube

Ongoing work..

- Thorough review of Dataset Metadata descriptions
- Group review, discussion of any issues, STC2 update
- Correct SparseCube for event list requirements.
- Utypes?
    - Not defined pending serialization discussions
    - Vo-dml approach self defines
    - 'Old style' should be a separate list as in Char model
- Sample serializations?
    - VO-DML docs will provide recipe for serializing the objects and relations.
    - Can provide example, again as separate entity.
      A full serialization would be longer than the model.
    - Have begun prototypes to test model.

Roadmap

- Goal from Madrid was 'ready for RFC' for this mtg. Work still to do includes:

- Complete WG review
- Reference Implementations
    - Not too early to start working.. need volunteers

        client side AND provider side
- PR review (1 month)
- RFC review (1 month)
- TCG review (1 month)