Workpackage 1 - Harmonization

Sangoma kick-off

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Outline

- Objectives
- Deliverables and planning
- Proposed approach
- Towards a common interface
- Actions & more detailed planning

Objectives

Harmonization of assimilation tools:

- Analyze the existing tools as a series of modules, some of which are common to several assimilation tools.
- Those modules, with the newly developed modules of WP4 and WP2 will then serve as the toolbox for designing new operational DA systems.
- Adoption of common standards and naming conventions.

Deliverables and planning

- Task 1.1 Identification of common tools
  - List of commonly available tools → **Month 3**
- Task 1.2 Identification of new tools to be shared
  - Update of list of available tools
  - List of required tools → **Month 6**
- Task 1.3 Specification of tool interface data model
  - Specification of the data model → **Month 6**
  - Presentation of these results in a plenary workshop
- Task 1.4 Documentation of specifications
  - Documentation and tests → **Month 12**

- Updates during project

Focus at start of project

Proposed approach

- Inventory
  - Extend list of available and required tools
  - Classification of tools
  - Online interaction with multiple iterations
- Design
  - Supported programming languages
  - Logical data model
- Documentation
  - Tests in subversion
  - Latex documentation in subversion

Inventory

- Inventory of the data needed for designing a common data model.
  - What data items do you use in your model/system?
  - How is this data represented?
  - What special/essential choices have you made your data representation and why?
- Inventory of the modules
  - Which modules do you minimal need for successfully complete your WP's?
  - Which (less essential) modules do you need/like?
  - Who do you think is going to design/build the modules you need?
  - Which modules are you going to develop?

Inventory

- Using a template you can answer these questions in a shared document (Google docs)
  - We (TUD) prepare the template and initial document and make it available
  - As example we will (pre) fill in the TUD section (use Delft3D for data model example)
  - We can see each other contributions while writing

- Planning
  - Template available Dec 9th
  - Filled in example Dec 23
  - Everybody has filled in requirements Jan 13th
  - Next iteration planned depending on results of 1st iteration

Interface design

- Short time-span available
- Limited scope for redesign
- Large differences in design between systems

→ relatively simple & start from requirements

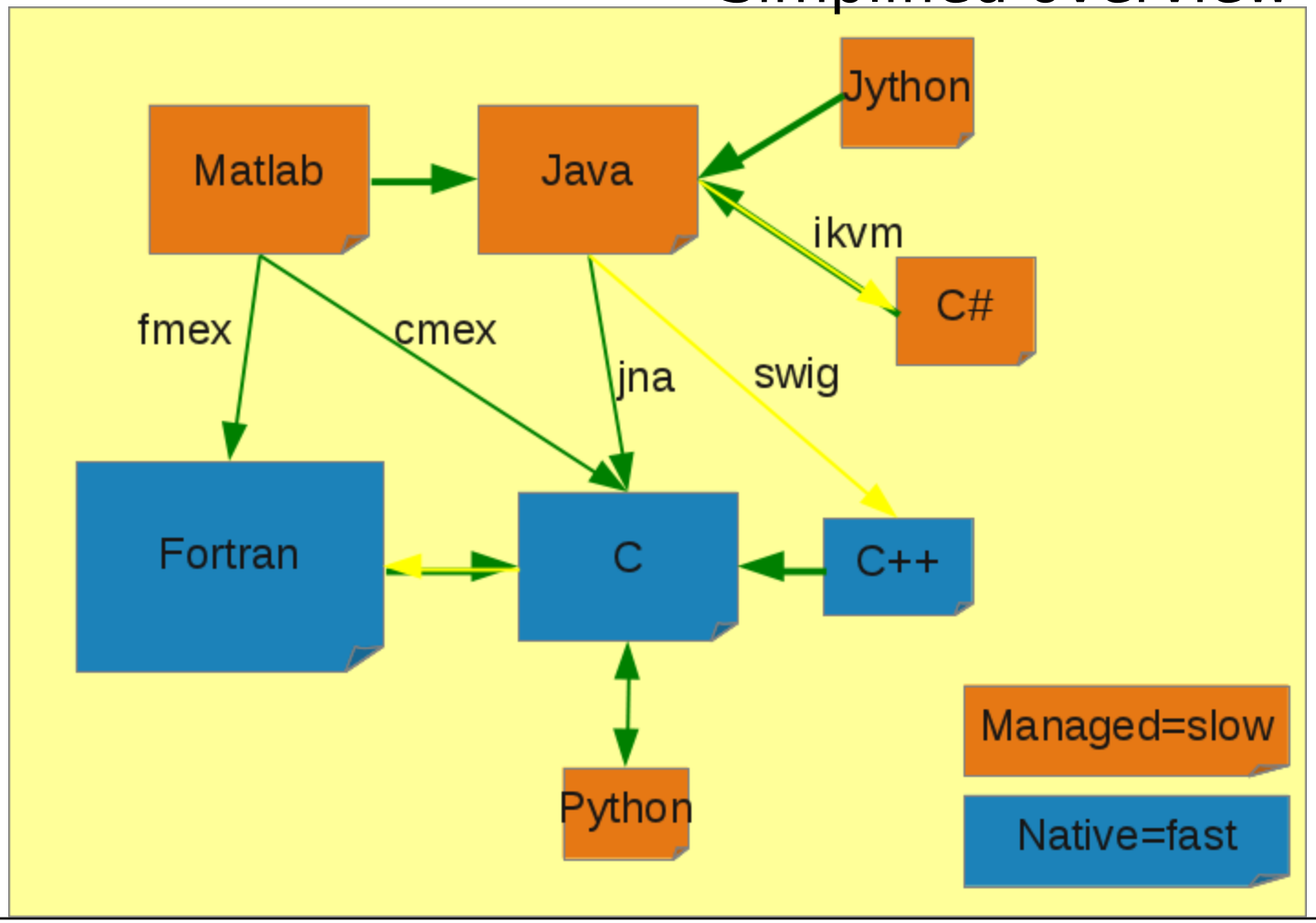
- Common elements Netcdf, Fortran

→ data-model at level of physical data in arrays

- Close link to Netcdf CF standards
- In memory data-model close to Netcdf data-model
- Simple, efficient, easy to use

Programming languages

Simplified overview



Data model

Supported data types

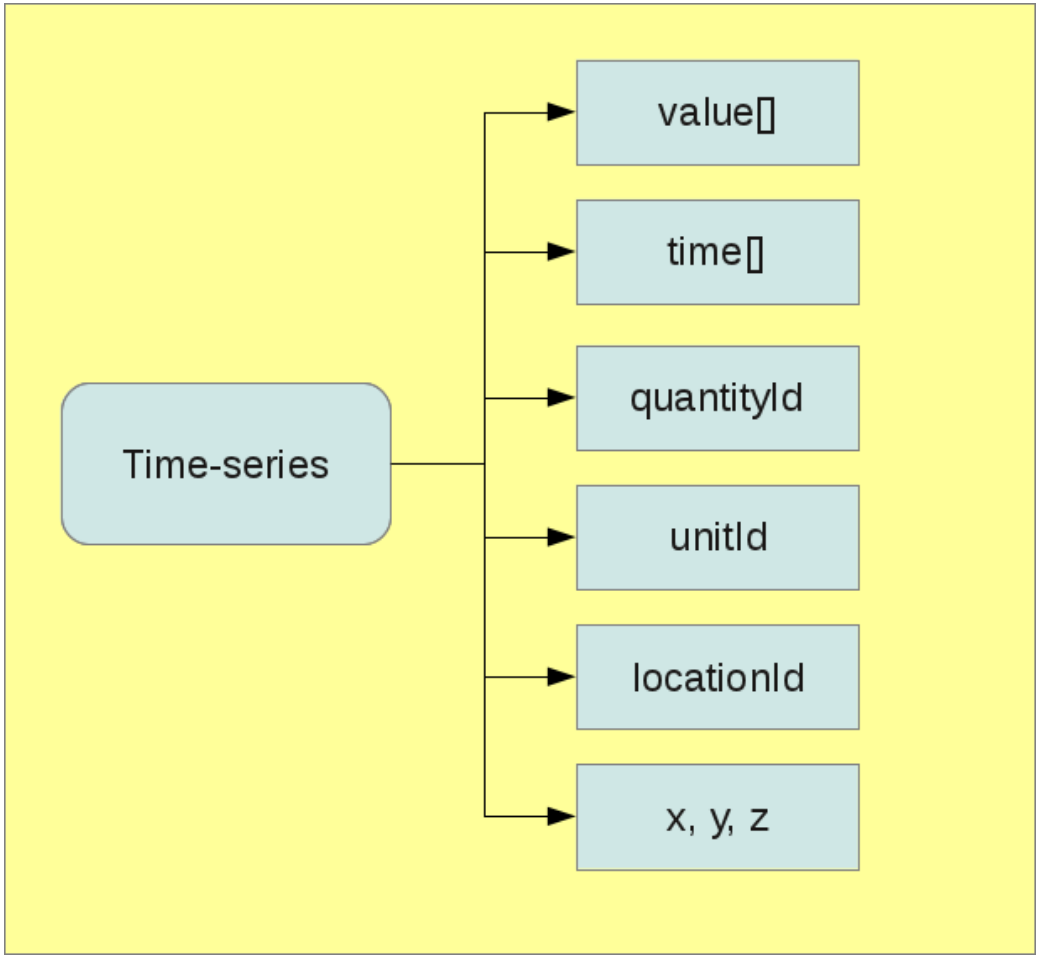
- 2D structured/unstructured
  - Sealevel, sst, ssh, sea-ice
  - Radar
- 3D structured/unstructured
  - Model temperature, salinity, velocities
- Time-series at stationary location
  - Buoys, tide gages, bottom mounted instruments
- Time-series moving with flow or instrument
  - Altimeter, argo floats, ships, gliders
  - XBT, ADCP (stationary 1D needed?)
- Needed?
  - Wave spectra
  - ADCP from ship

Data model

Elements

- Arrays (multidimensional collection of numbers)
- Quantity, Units : standard_name
- Grids
  - Horizontal: structured and unstructured
  - Vertical: sigma, z-level, hybrid, (isopycnic?) → explicit?
- Coordinates
  - WGS-84 (lat-lon)
  - Conversion and projection needed?
- Time
  - Units and timezone (Is MJD enough?)
- Annotation
  - Pass through for building Netcdf files

Example of a logical data-model



No direct access, only through get and set functions

More detailed planning

- Month 1=November
  - Kick-off meeting
- Month 2=December
  - Inventories of available tools & required tools
- Month 3=January
  - Reporting and updates
  - D1.1 list of available tools
- Month 4&5
  - Iterative updates of required methods
  - Draft data-model
- Month 6=April
  - (D1.2) List of required methods
  - (D1.3) Specification of data-model

More detailed planning

- Month 7-11
  - Documentation, specification and iterative improvements
- Month 12=October
  - (D1.4) List of required tools with specifications
  - (D1.5) Documentation of specifications

Actions

- Inventory of data-types and tools
  - Who is contact for this at each partner?
  - Is January 15th realistic?
- Feed-back on draft data-model
  - Who want to provide feedback?
  - Datamodel prototyping in SVN. Who provides write access?