VDC and DataMgr Update
2/5/2015

VDC library updates (1/2)

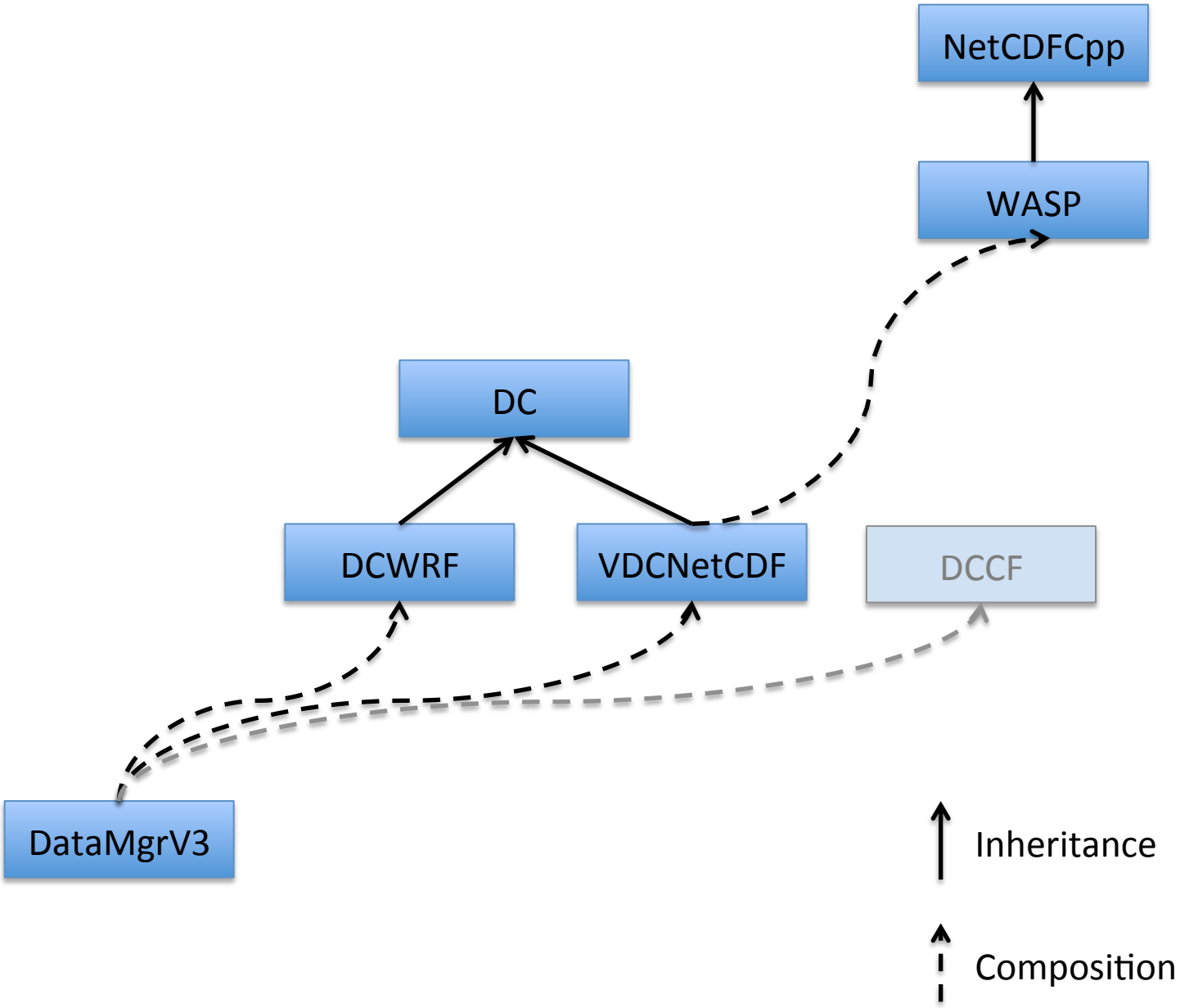
- DC class (new)
  - Abstract base class specifying interface requirements for reading native (VDC3) and ``foreign'' data (e.g WRF, ROMs, etc)
- VDCNetCDF class
  - Supports reading/writing VDC3 data
  - Now derives from DC
  - Support for missing data in progress
  - TODOs:
    - Missing data
    - Support refinement level for variables that aren't compressed
    - Lots more testing
- DCWRF class (new)
  - Reads WRF data
  - Derives from DC

VDC library updates (2/2)

- DataMgrV3 class
  - No longer needs to be sub-classed to support specific file formats and grid types (i.e no DataMgrWRF, DataMgrMOM, etc). Each file format now supported via composition using DC derived objects (e.g. DCWRF, VDCNetCDF)
  - Currently only supports layered and regular grids (RegularGrid and LayeredGrid)
  - Currently no support for derived variables via numpy
  - TODOs
    - Stretched grids
    - Derived variables
    - **Curvilinear grids**

New command line tools

- Wrfvd**c**create & wrf2vd**c**
  - Bare bones prototype WRF to VDC converters
  - No command line options currently


NetCDFCpp
WASP
DC
DCWRF
VDCNetCDF
DCCF
DataMgrV3
Inheritance
Composition

New Methods

```
// Initialize the DataMgr
Int Initialize(
    const std::vector <string> &files
);
```

- Notes
  - Constructor is now no-fail

Deprecated methods

- GetDim() - moved to VDC::BaseVar class
- GetNumTransforms() - moved to VDC::BaseVar class
- GetCRatios() - moved to VDC::BaseVar class
- GetCoordSystemType() - TBD
- GetGridType() –
- GetMapProjection() - moved to VDC::BaseVar class
- GetPeriodicBoundary() - moved to VDC::BaseVar class
- GetGridPermutation() - TBD
- **GetVarType**() – Not available
- GetMissingValue() - moved to VDC::BaseVar class
- **MapVoxToUser**() - equivalent functionality available in RegularGrid class
- **MapUserToVox**() - equivalent functionality available in RegularGrid class
- **GetEnclosingRegion**() – N/A
- IsCoordinateVariable() - equivalent functionality in DataMgr
- GetValidRegion() - Storing a spatial subset of a variable will no longer be supported because it is not portable.

Issues and items of note

- For now most irregular grids (e.g. curvlinear) will still be resampled to a regular grid
  - Need to adapt ray-caster and DVR to work with "less regular" grids
- Level and lod param changes:
  - -1 => "best" or native
  - -2 => next best, and so on
  - Old values (positive ints) still supported

What's next?

- Integrate DataMgrV3 into vaporgui (V3)
- Derived variable support
- Figure out how to handle curvilinear grids (resample, modify DVR and iso, other?)
- Translators for other models (DCGrib, DCCF, other?)