I/O analysis of climate applications

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Content (Agenda)

Introduction

- what climate models do
- what is important about them
- take a look at the workflow (especially pre- and post-processing)
- take a look at storage systems

Goals and Tasks

- try to run models
- analyze their input and output
- take a look at the live-cycle of data
- deliver knowledge about that

The Models

- IFS (Integrated Forecasting System)
- AWIPS II
- CESM (Community Earth System Model)
- ECHAM

IFS

- well documented and maintained model
- license forbids benchmarking

Awips II

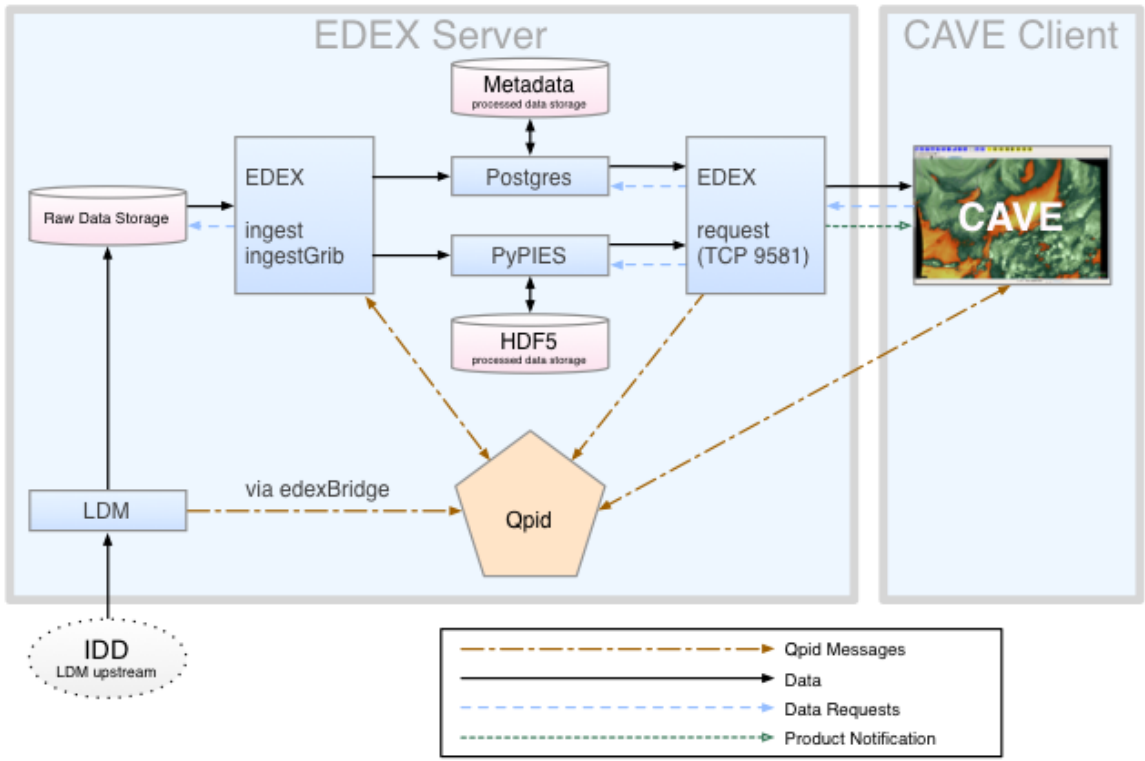


Figure: Awips Infrastructure [**?**]

CAVE

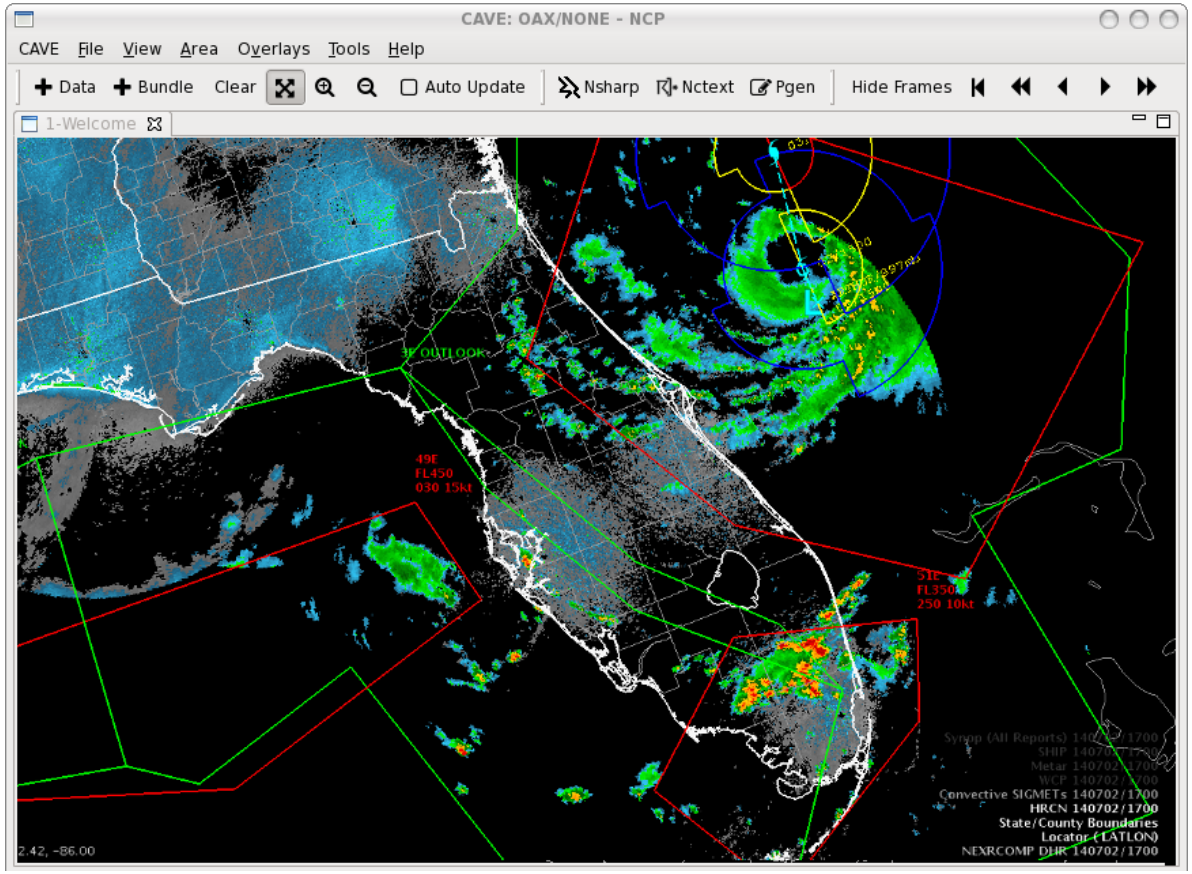


Figure: Awips Infrastructure [?]

CESM

- Community Earth System Model
- model for global climate simulation
- covers atmosphere, land, land ice, sea ice, ocean and river
- provides scripts for setting up the machine in 4 commands
  - scripts are broken
  - mix of bash, csh, perl
- good configurability with xml files
- requires netCDF format for input data [**?**]

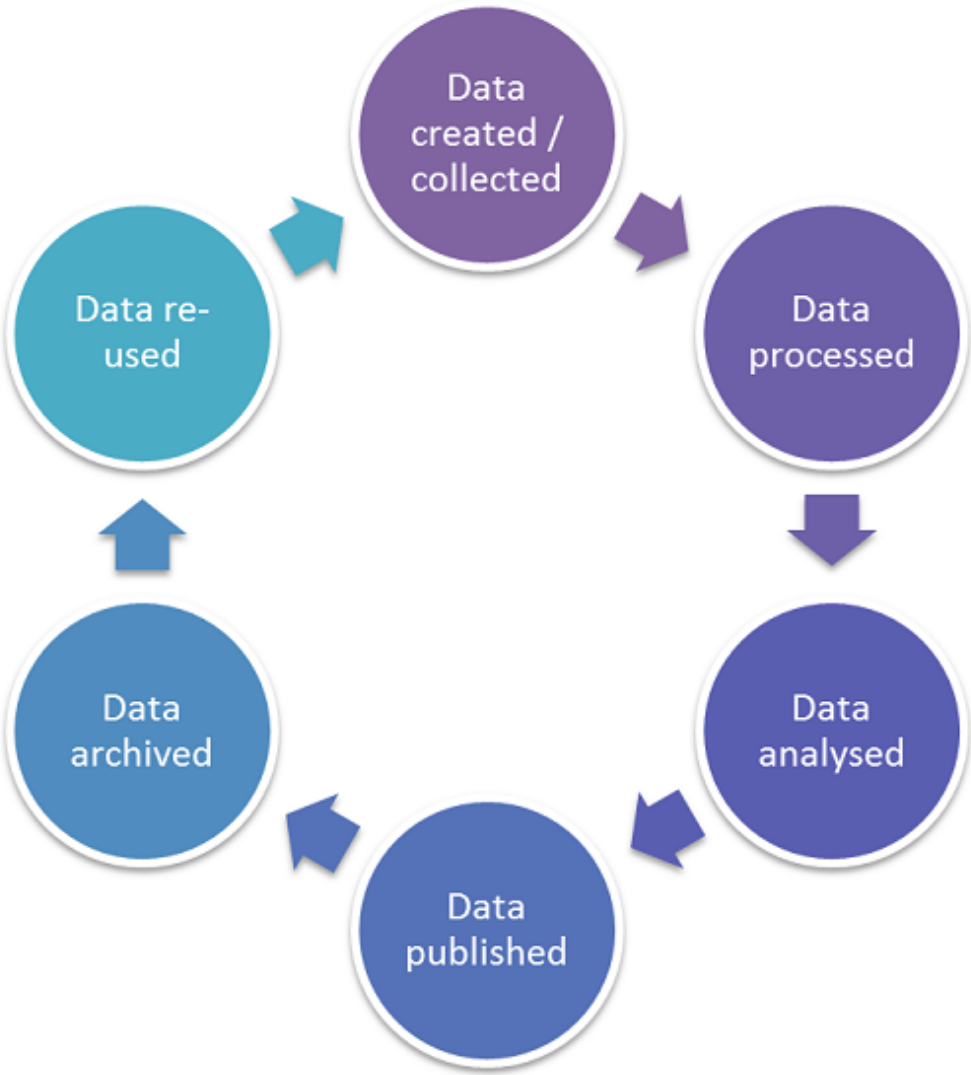
CESM Failure

- fixed Broken setup scripts
- fails with during compilation
- ‘pio’
- no documentation

ECHAM

- model for atmospheric circulation
- developed by the Max Planck Institute for Meteorology
- branched in year 1987 from the global numerical weather prediction model by ECMWF

I/O analysis


Data created / collected
Data processed
Data analysed
Data published
Data archived
Data re-used

Summary

- Models
  - CESM, ECHAM
- Data
  - life-cycle
  - pre- and post-processing
- analyzing
  - AWIPS II

Sources I