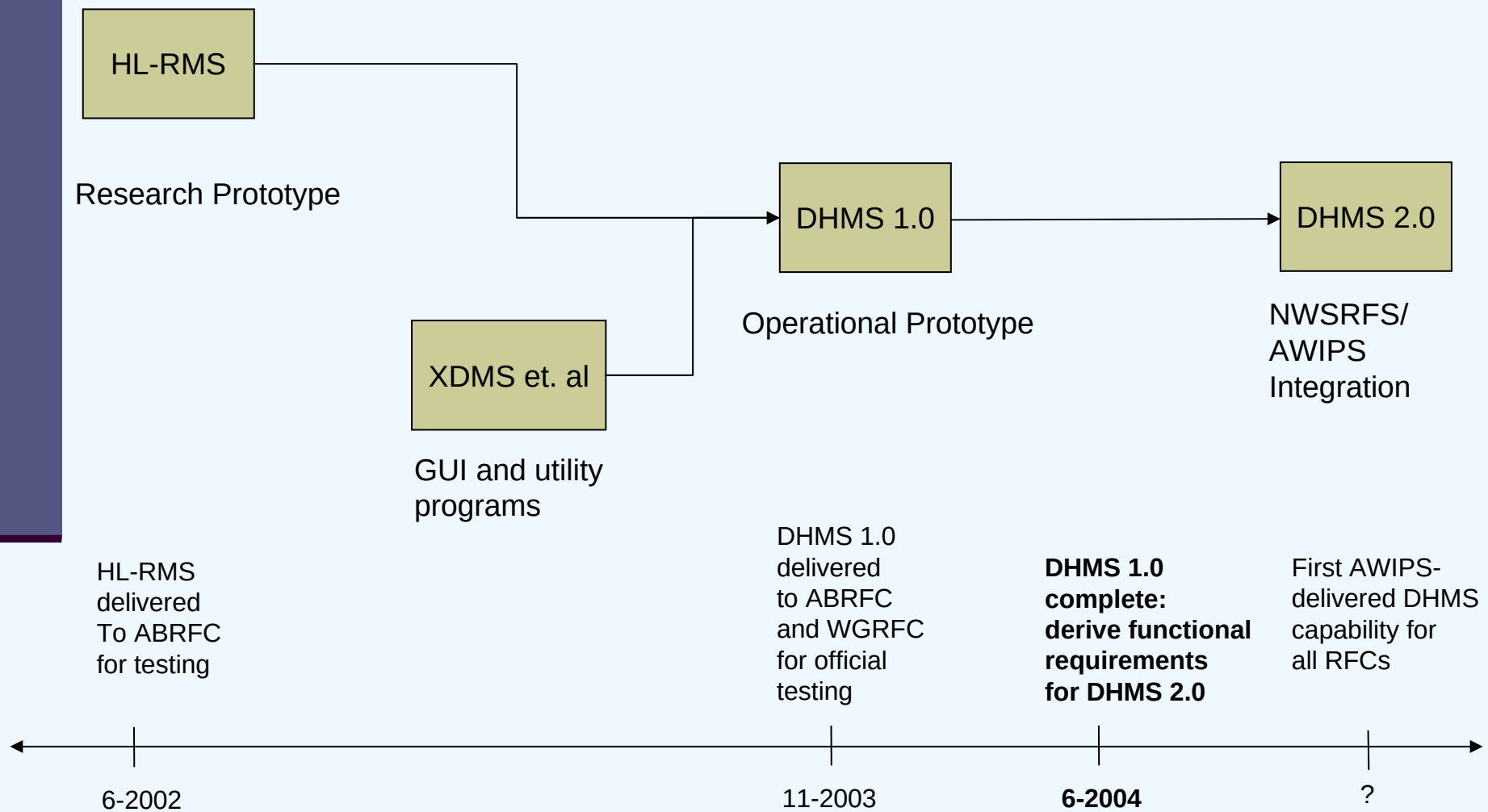
Distributed Hydrologic Modeling System (DHMS)

Lee Cajina
OHD Hydrology Laboratory
8 June 2004

DHMS Project Definition

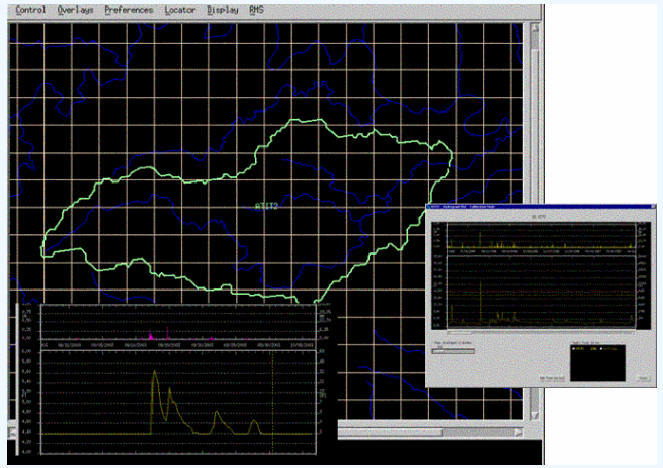
- Mandate from Regions/RFCs to move current state of distributed hydrologic modeling science to operations while continuing research, November 2002
- DHMS project initiated, March 2003
- Multi-Phase project:
  - DHMS 1.0, harden research prototype (HL-RMS) to use for gathering requirements from two RFCs (complete)
  - DHMS 2.0, develop initial operational distributed hydrologic forecast modeling capability and integrate into NWSRFS (on-going)
  - DHMS X.X, later phased improvements and additions

DHMS Project Timeline

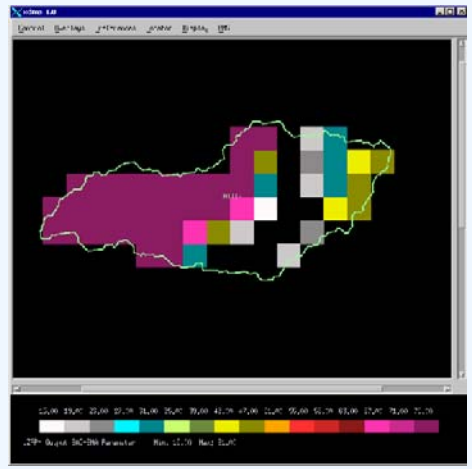


DHMS 1.0: Work Completed

- OHD/ABRFC/Apex Development
  - XDMS GUI and other utilities
  - General HL-RMS code review with suggestions for more efficient processing

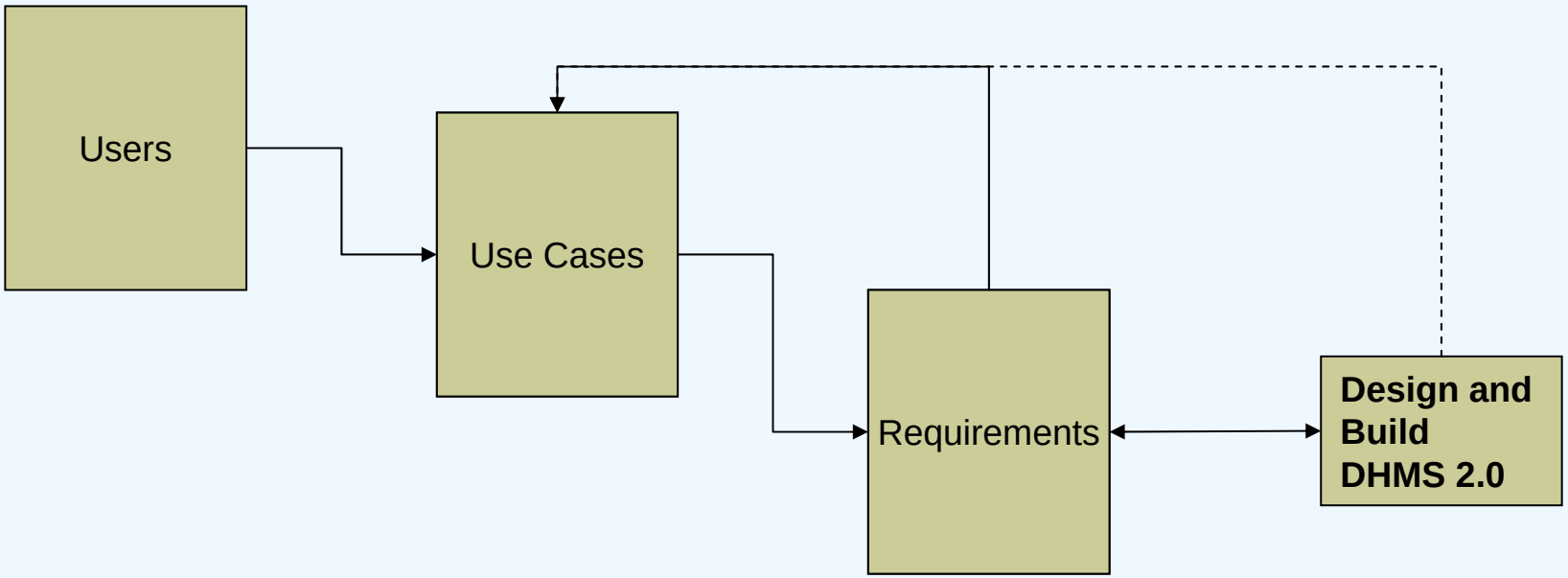


- Survey ABRFC/WGRFC on usability and future requirements
  - *Is the setup to use this model more difficult, less difficult, or comparable to that for a lumped model?*
  - *What would you recommend as the next step in testing/implementing the distributed modeling system?*
  - *Summarize HL-RMS performance, were there any performance issues that hindered your testing?*



DHMS 2.0 Functional Requirements

- Use-Case Driven Requirements Gathering



- 8 Users (e.g., RFC forecaster, research scientist)
- 26 Use Cases (e.g., Issue a forecast, Analyze gridded state variables)
- About 150 high-level functional requirements
- About 400 total requirements (e.g., The system will display a legend for gridded states)

DHMS Future Project Plans

- Finish Research and Analysis, HOSIP Stage 3
  - Conduct a requirements review to validate, refine, and prioritize functional requirements
    - OHD, OCWWS/HSD, ABRFC, WGRFC, more RFCs?
  - Create a project plan for Operational Development, HOSIP Stage 4
  - HOSIP Gate 3 approval from HL Chief to move to Operational Development

DHMS Future Project Plans

- Conduct Operational Development, HOSIP Stage 4
  - Derive system level requirements (technical/architectural)
  - Update project plan for resources and milestones
  - Design DHMS
    - Design overall DHMS
    - Take advantage of CHPS where possible
    - Design initial components (DHMS 2.0)
    - Create test plans/procedures (DHMS 2.0)
  - Develop and Test DHMS 2.0
  - Prepare user manual and training information
  - Conduct RFC beta test of DHMS 2.0 (as with AWIPS)
  - HOSIP Gate 4 approval from HL Chief for field deployment to RFCs and submission to AWIPS