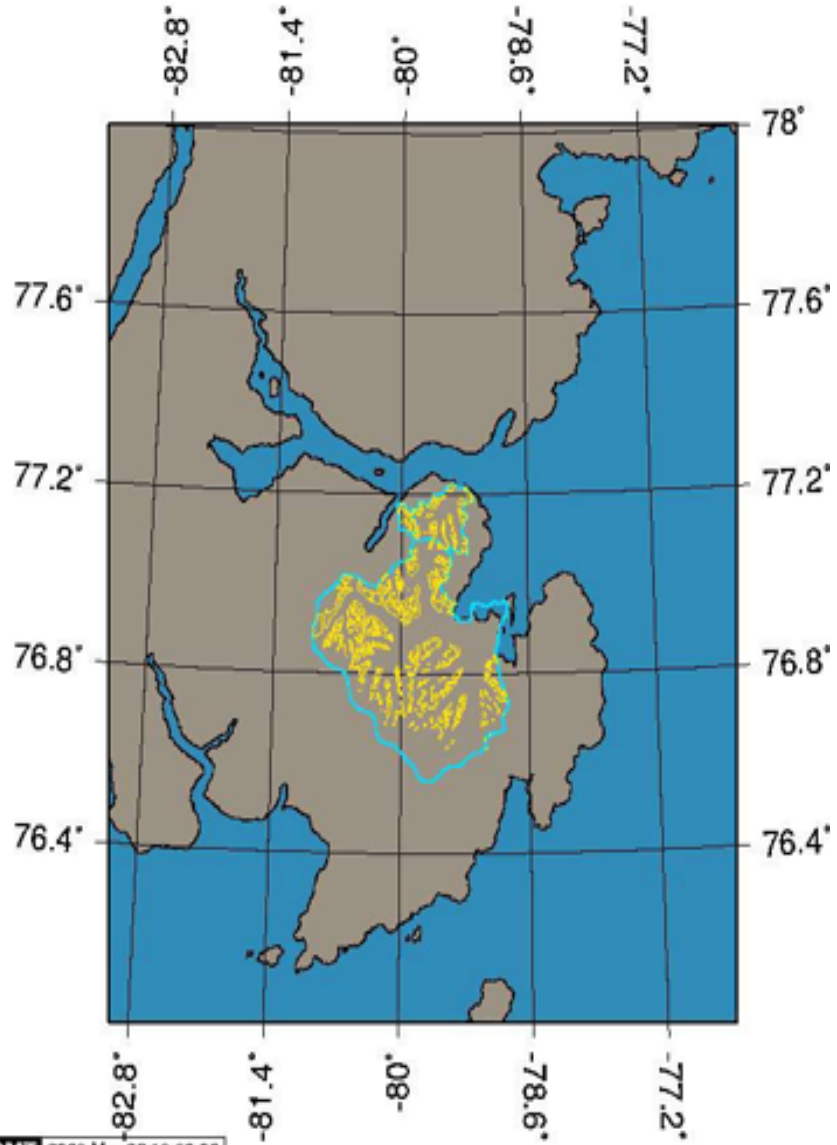Data in Copland_DONE

GMT 2003 Mar 26 13:30:00
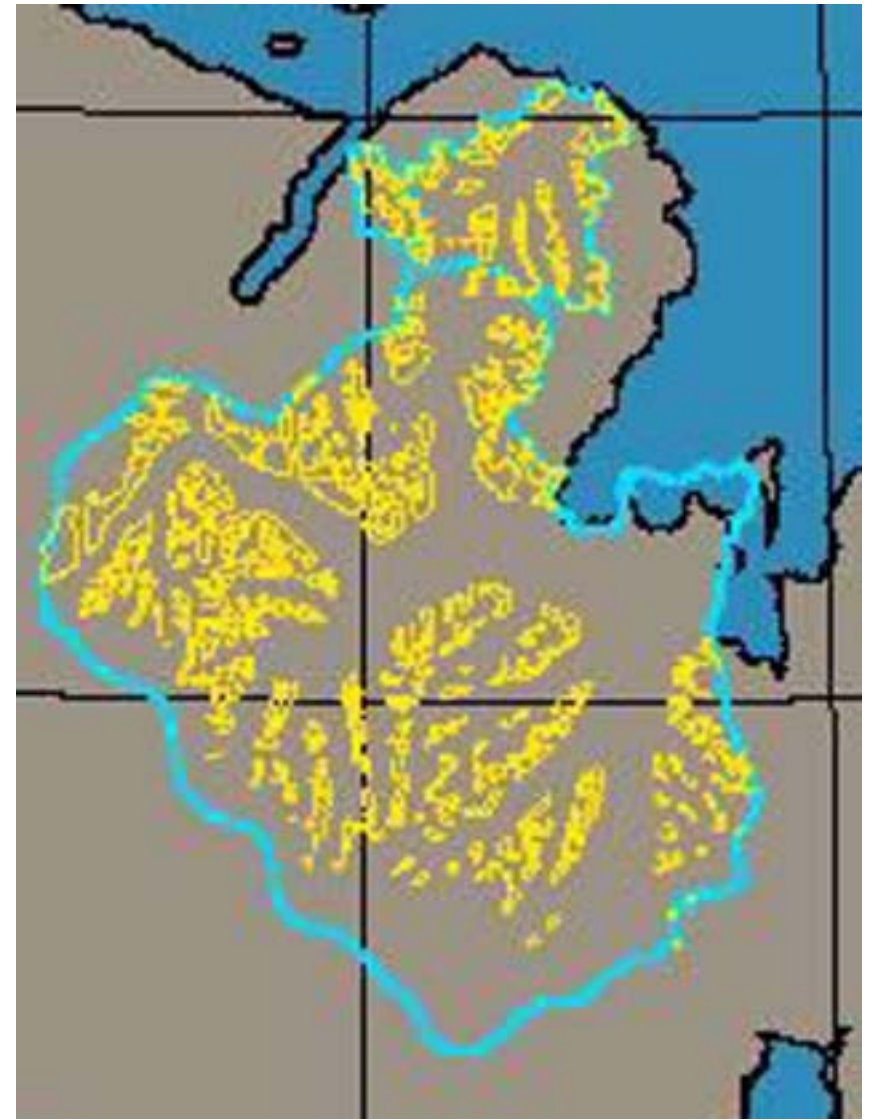
Regional Centers

Users

GLIMSview

Browser

FTP tool

Desktop GIS

FTP Staging

Web Applications (WCS, WFS, WMS)

Other OGC–Compliant Servers

Ingest, QC

Webserver CGI

Formatter

NSIDC

SQL Query

Query Results

Database Engine

Implemented

Partially Implemented

Future

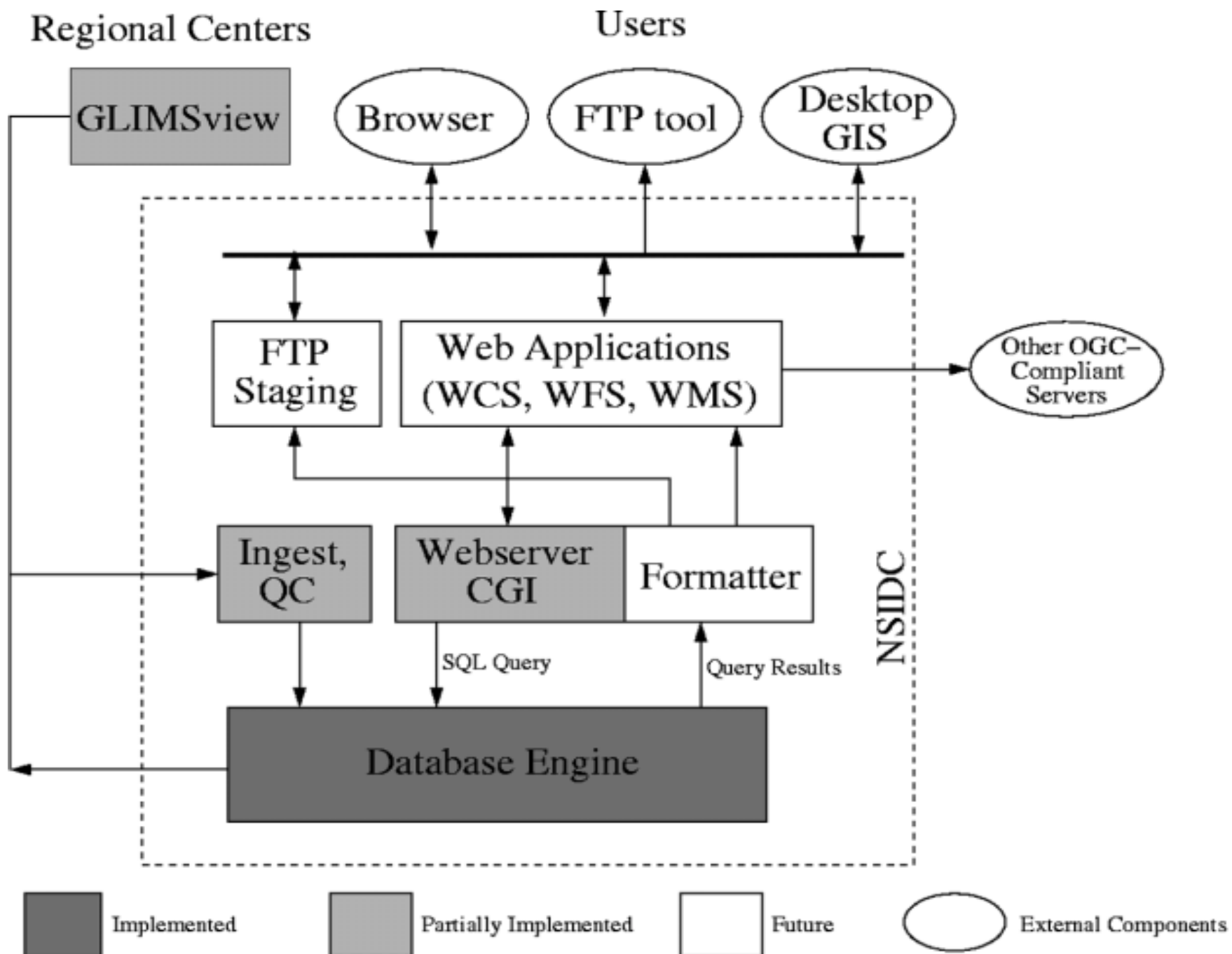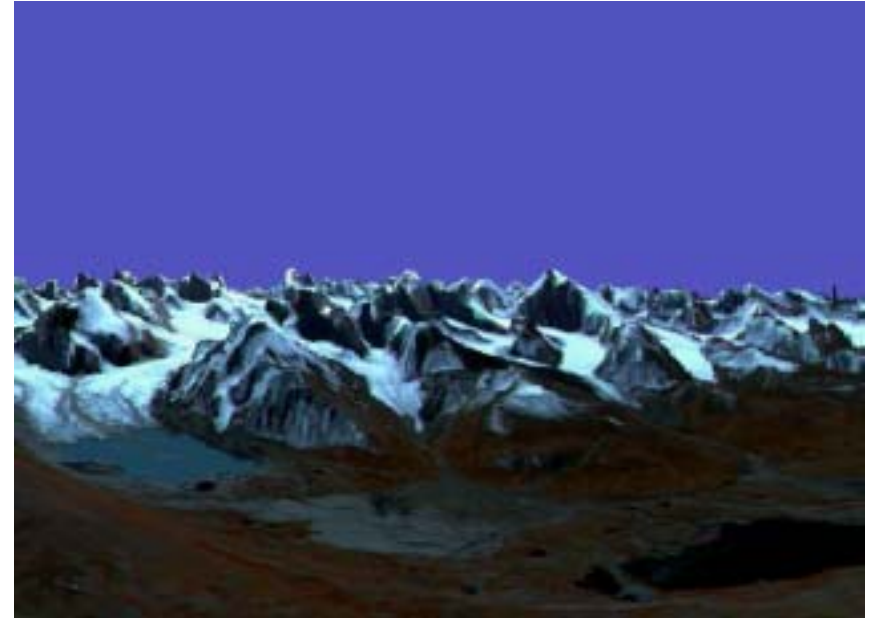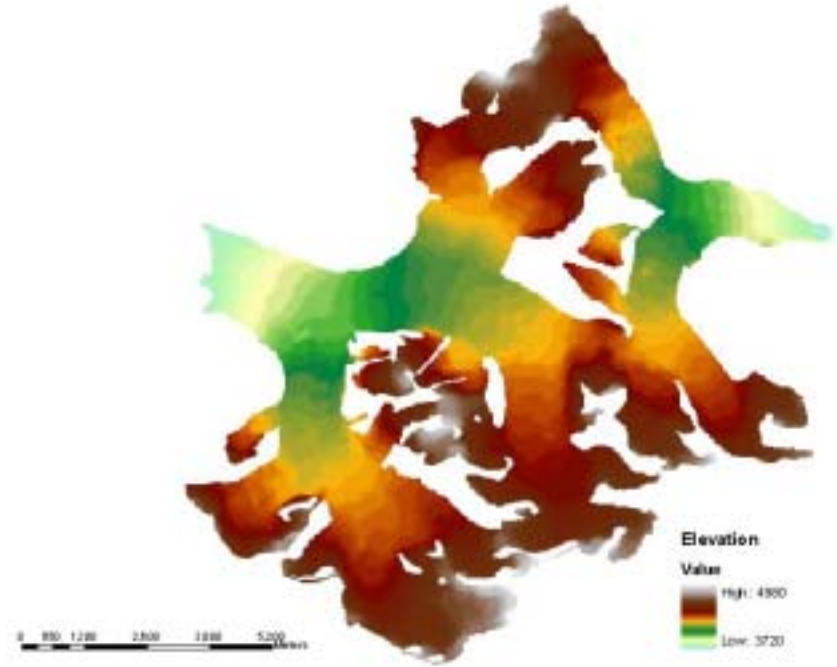External Components

Glacier Mass Balance Studies

- ASTER data being used to predict response of glacier systems to climate change

- Glacier boundary outlines (using GLIMSView) combined w/ ASTER-derived DEM to get hypsography

- Hypsography plus measurements from benchmark glacier used to define mass balance as function of ELA for entire glacier system

•Editing has been performed to remove artifacts and interpolate over failed regions.
•DEM used to orthorectify image bands
•False color VNIR composite draped over DEM for 3-D visualization

Glacier Mass Balance Studies

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•Mask DEM using ice outlines
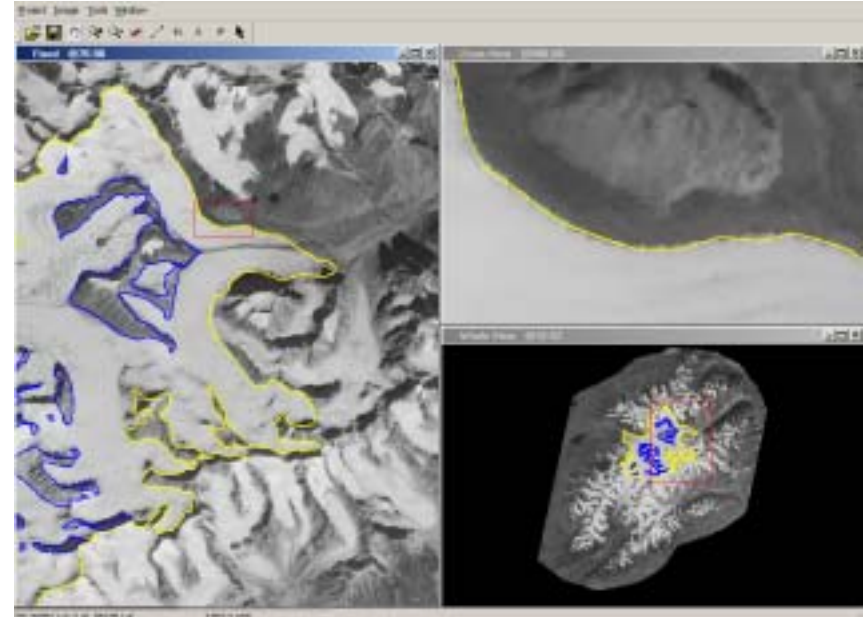•Compute histogram of elevations

Glacier Mass Balance Studies

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- Digitizing outlines w/ GLIMSView
- Exports data in format specified for ingest into GLIMS database at NSIDC
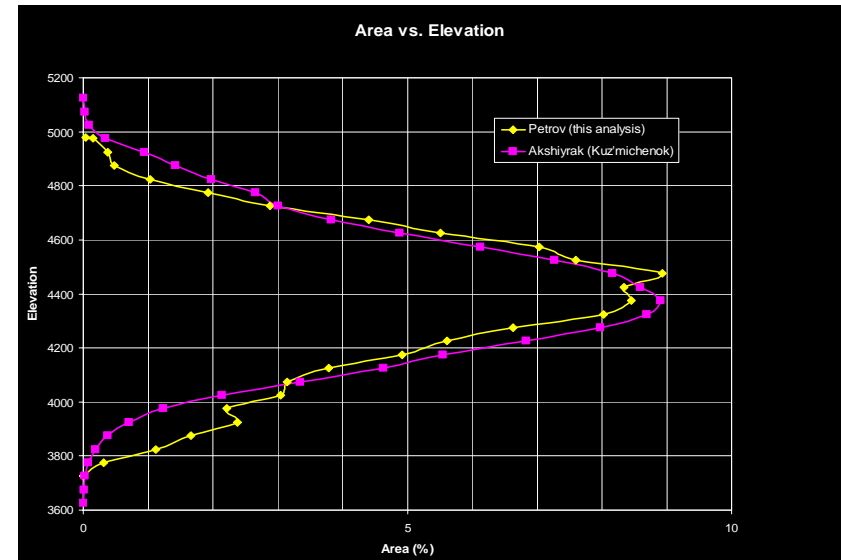
Glacier Mass Balance Studies

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Hypsography compared to previous field survey (Kuzmichenok, 1977)

The "Template" Method

- Field measurements of benchmark glacier used to find annual mass balance as function of accumulation area ratio (AAR)

  - This relationship is assumed to apply to all glaciers in a region sharing similar climate, terrain, etc.

- Integral of area vs. elevation curve gives AAR as function of equilibrium line altitude (ELA)

- Thus, we can get mass balance as function of ELA for any glacier, using its hypsography