

A scenic view of a rocky coastline with the ocean and a clear blue sky. The foreground shows large, dark rocks with some green vegetation. The middle ground is the calm blue ocean, and the background is a clear blue sky with a faint horizon line.

Creation of Gridded MOS Land Water Mask

Statistical Modeling Branch
Meteorological Development Lab
November 9, 2007

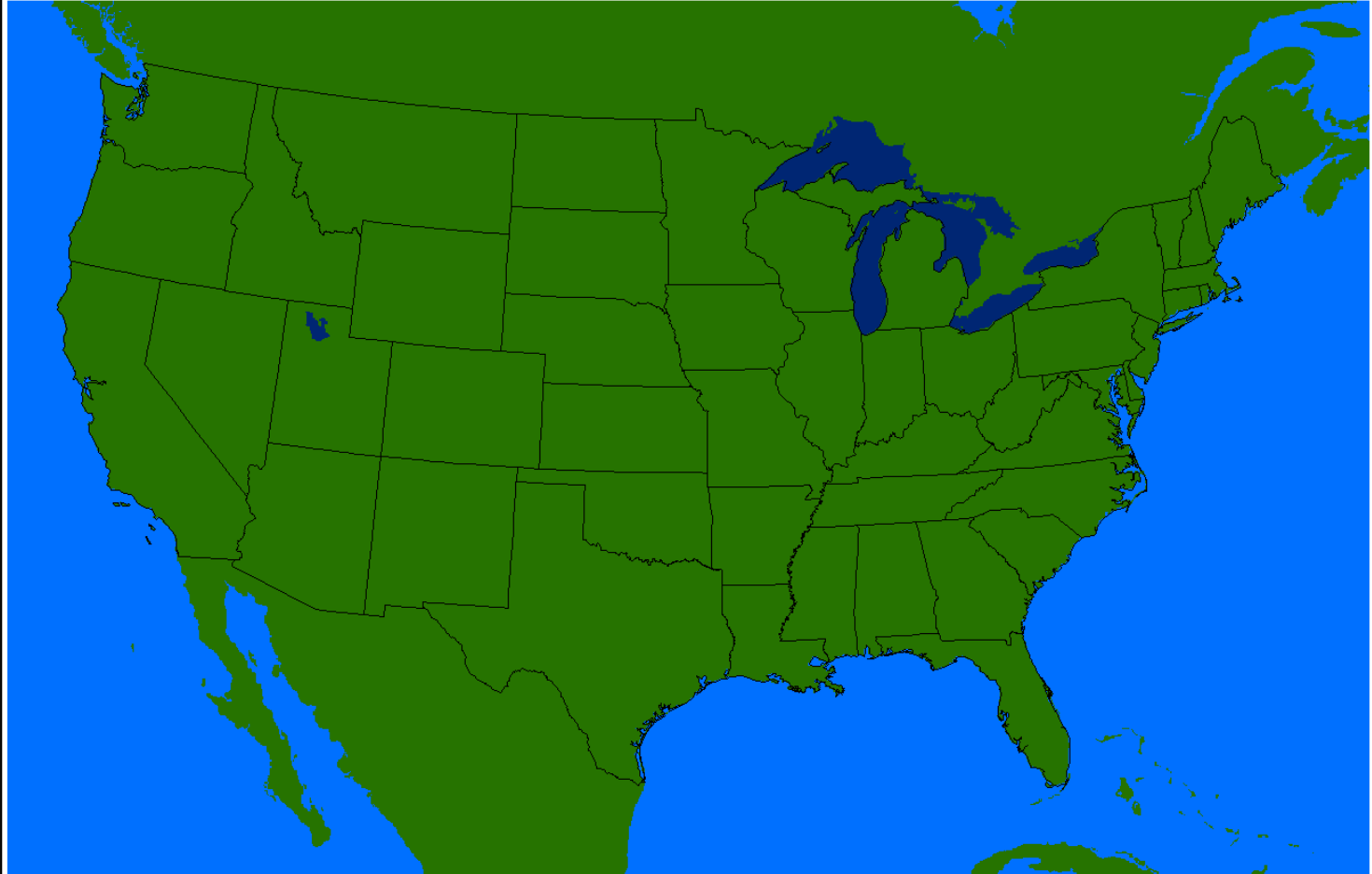
Current GMOS Land Water Mask

- Coarse U.S. shapefile from ESRI media DVD
- Manual editing tailored to analysis technique
 - coastline was adjusted to match station location
 - Grid point location not considered in edits

Purpose of Regenerating Land Water Mask

- Common land water mask for GMOS and verification software
 - Poor Gridded MOS verifications in coastal areas when compared to NDFD
- GMOS users expressed concern along the east coast
 - Barrier islands
 - Harbor and Bay sizes not accurate

Current GMOS Land Water Mask

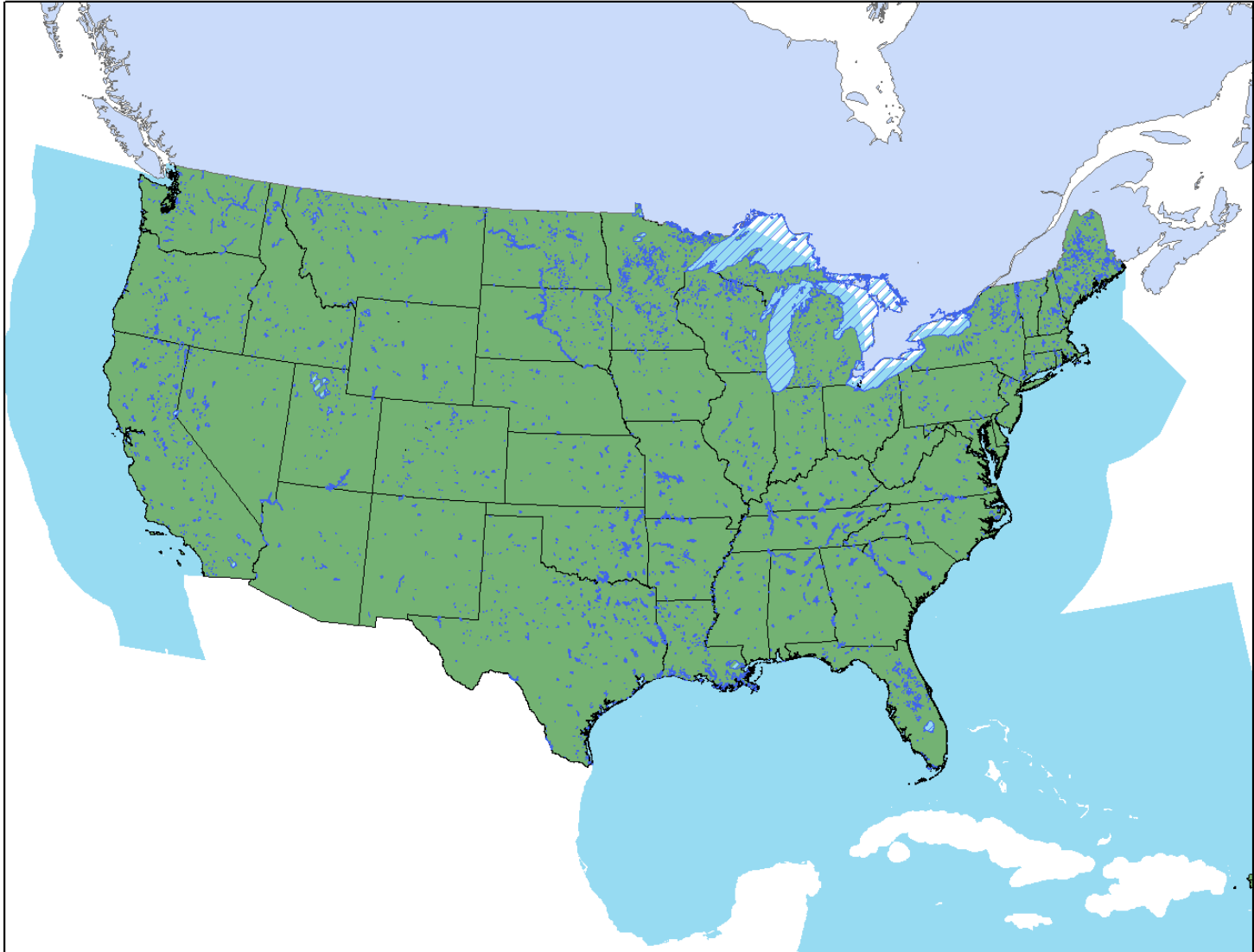


AWIPS High Resolution Shapefiles

- Marine Zones only consider US territory
- Mexico & Cuba not available
- Includes all US lakes
- Gaps between US and Canada where water exists



AWIPS High Resolution Shapefiles



Modified AWIPS High Resolution Shapefiles for GMOS

- AWIPS States Shapefile
 - Removed Lake Okeechobee due to lack of MOS station guidance in the lake
- No Mexico AWIPS shapefile
 - Used ESRI Media States file
 - Drew polygon to “fill in” holes left due to differing resolution with AWIPS states shapefile
- Inland Water
 - AWIPS Lakes Shapefile
 - Selected Great Lakes, Great Salt Lake, & Lake St. Claire
- AWIPS Canadian Province Shapefile
 - More coarse than AWIPS states shapefile
 - Drew polygon to “fill in” holes left due to differing resolutions
- Ocean
 - No Ocean Shapefiles existed
 - Used a rectangular polygon bigger than the coverage area and erased all of the aforementioned shapefiles, so the remaining area became ocean

Removing Lake Okeechobee

The screenshot displays the ArcMap interface with the following components:

- Menu Bar:** File, Edit, View, Insert, Selection, Tools, Window, Help
- Toolbars:** Standard, Spatial Analyst, Editor, Spatial Adjustment
- Properties Window:** Contains a table with X and Y coordinates for a sketch.
- ArcToolbox:** Lists various tool categories such as 3D Analyst Tools, Analysis Tools, Cartography Tools, etc.
- Legend:** Shows three categories: 'ndgd_cover_meditan' (green), 'ndgd_land_classification' (light blue), and 'ndgd_n_american' (light orange).
- Map View:** Shows a map of Lake Okeechobee with a green sketch overlaying the lake's boundary.
- Windows Start Menu:** Visible in the bottom-left corner, showing folders like My Documents, My Recent Documents, My Pictures, My Music, My Computer, My Network Places, and Control Panel.

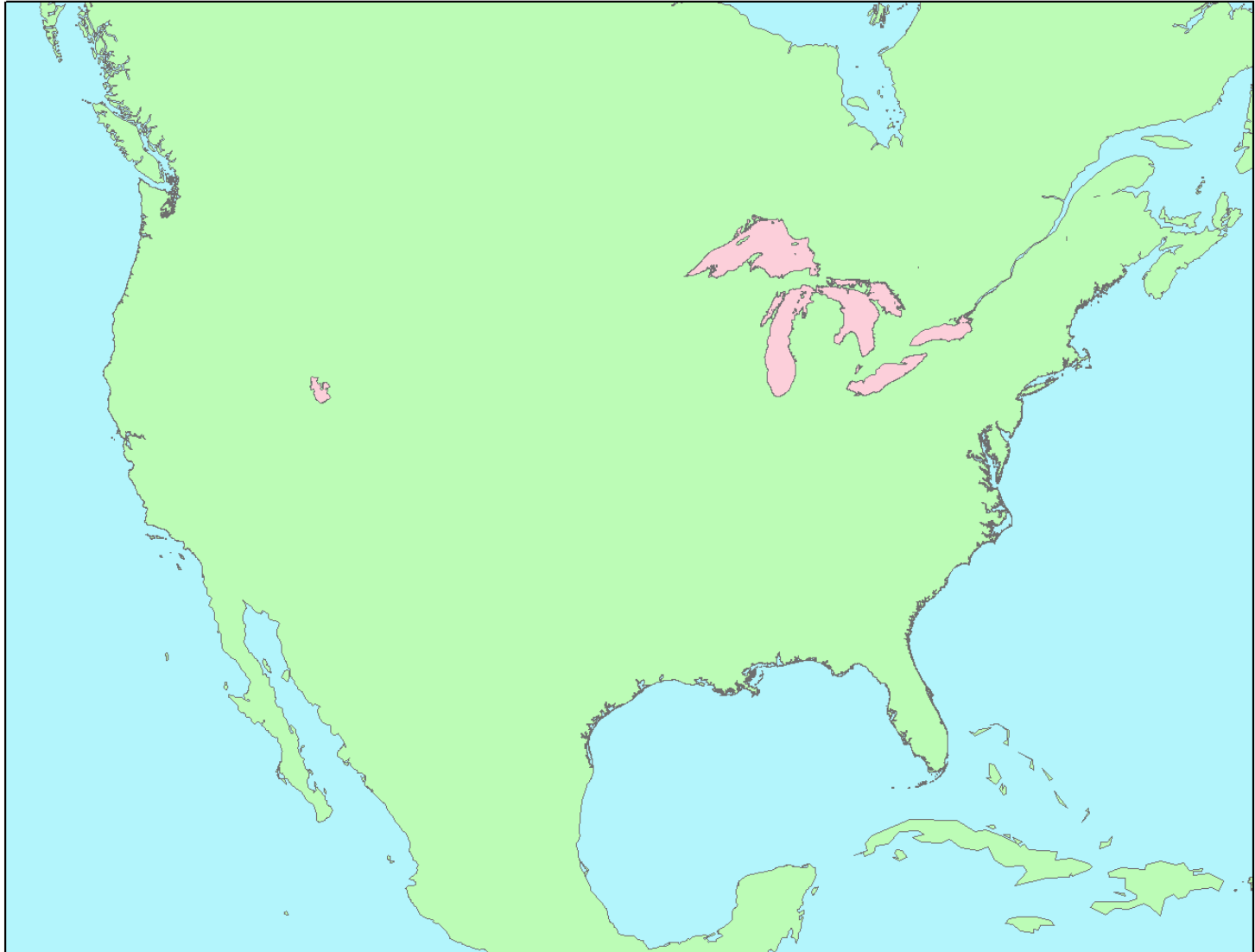
X	Y
0	516090.754
1	513889.626
2	512078.938
3	509195.645
4	509377.317
5	515393.660
6	517892.919

Take care to delete entire sketch, so no residual evidence of the lake is left.

Shapefile Edits for Land Water Mask

- Polygons were dissolved to eliminate holes and boundaries
- Inland water, Ocean, and Land shapefiles were merged to form a single shapefile
 - Attribute field indicates land or water
 - Ocean = 0
 - Inland Water = 3
 - Land = 9

Land Water Mask Shapefile

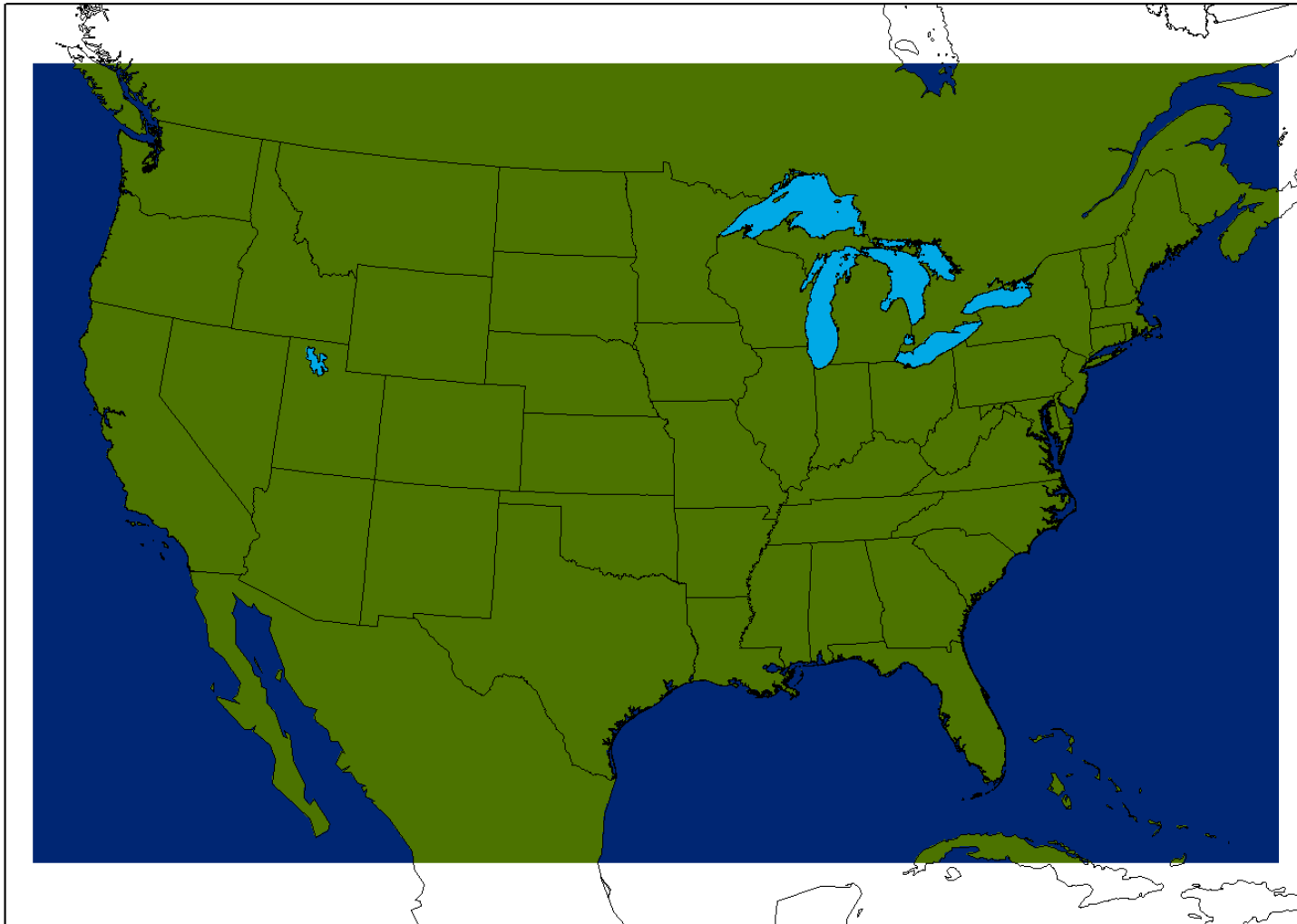


Land Water Mask Shapefile

- Polygon Shapefile converted to Raster GRID
- **Raster cell given value of polygon directly under the CENTER of the grid cell**
- Check was made by assigning polygon value to NDFD points
- Grid values were extracted to points

New Land Water Mask

New Land Water Mask



New Land Water Mask

Areas of Forecaster Concern

KMLB



KOKX

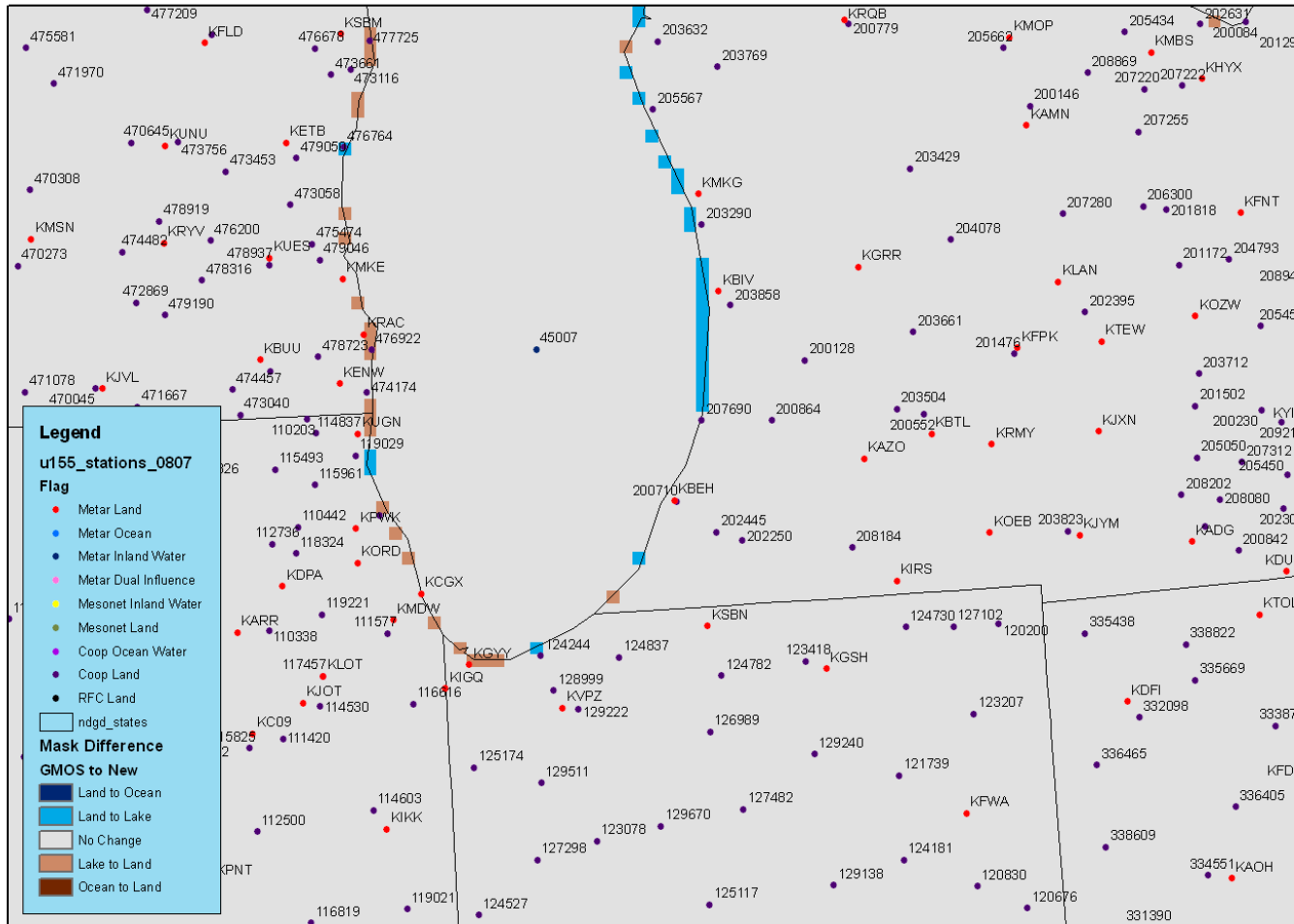
KGYY

KBOX

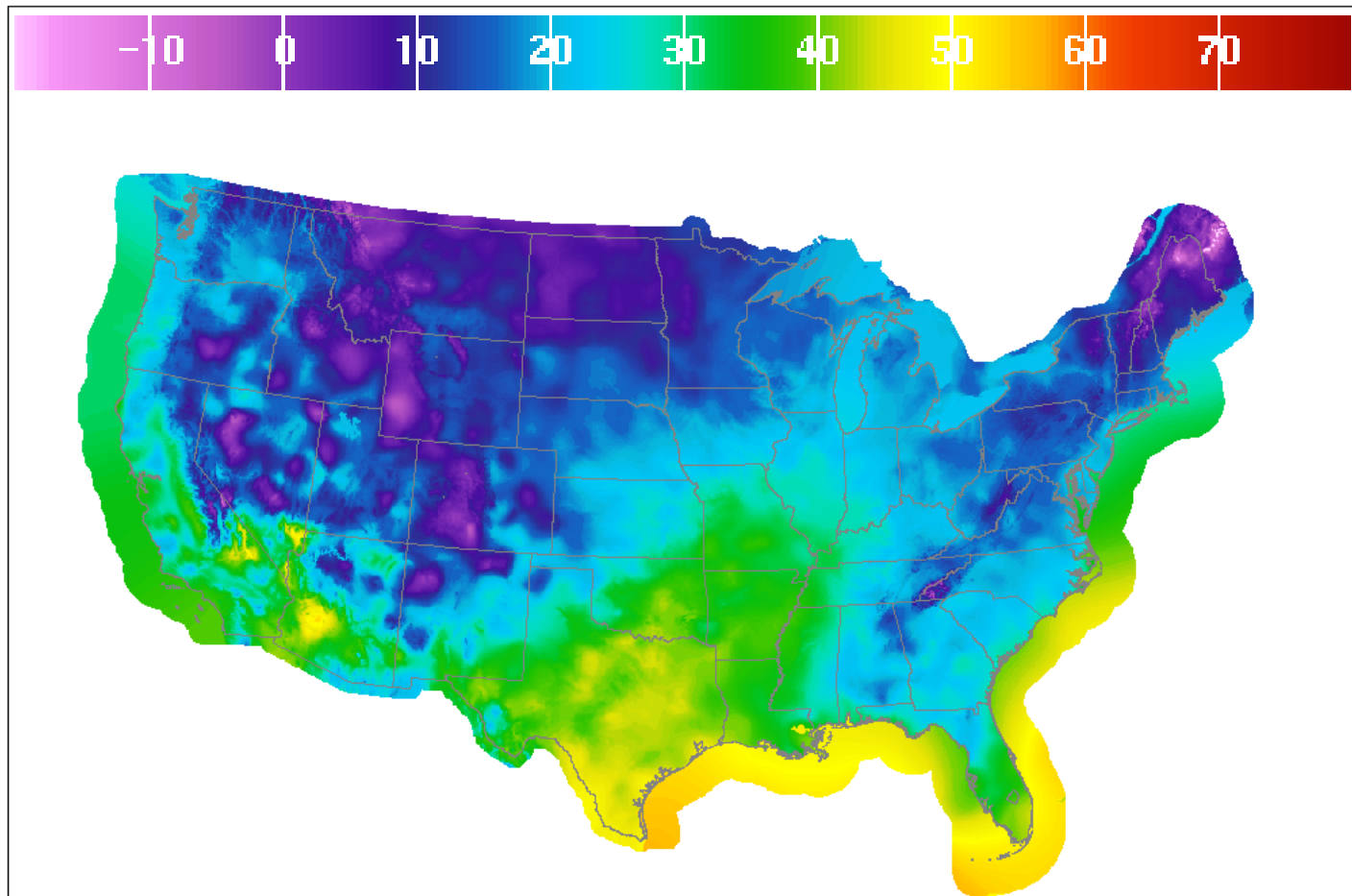
KILM

Difference in Current GMOS and New Land Water - KGYG

Difference in New Land Water and Current GMOS Land Water

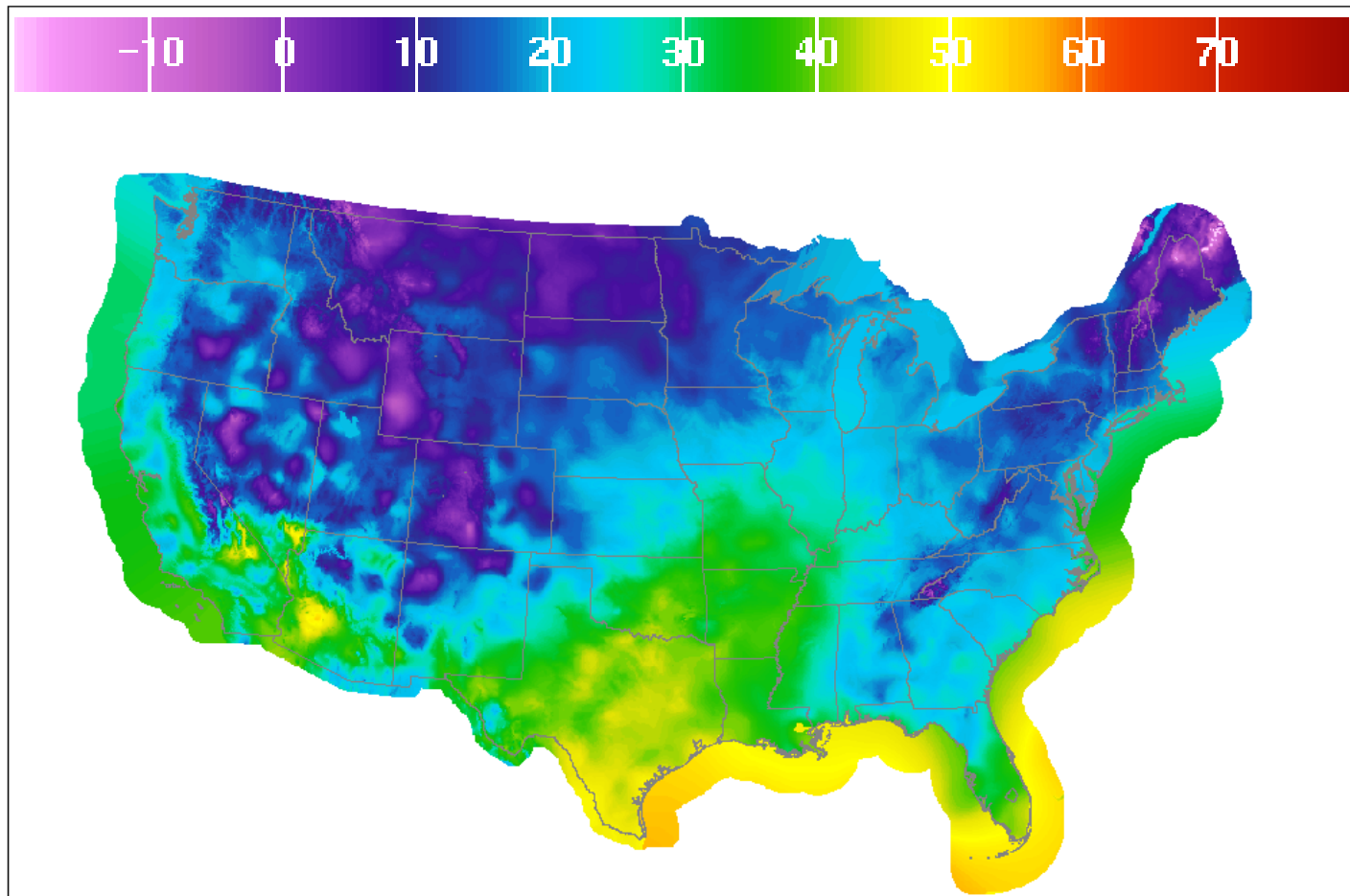


Temperature F24 November 4, 2007 12Z Cycle Proposed Land Water Mask



maps are available on web site as *.pdf files with zoom capability

Temperature F24 November 4, 2007 12Z Cycle Operational Land Water Mask



maps are available on web site as *.pdf files with zoom capability

Resources and Contact Information

- Web Based Land Water Mask Comparison
- AWIPS Map Database – shapefile source
- ESRI's ArcInfo 9.2 was used to create the land water mask
- For Further information
 - Kari Sheets, SMB GIS team lead
 - 301-713-0023 ext 125
 - Kari.sheets@noaa.gov