

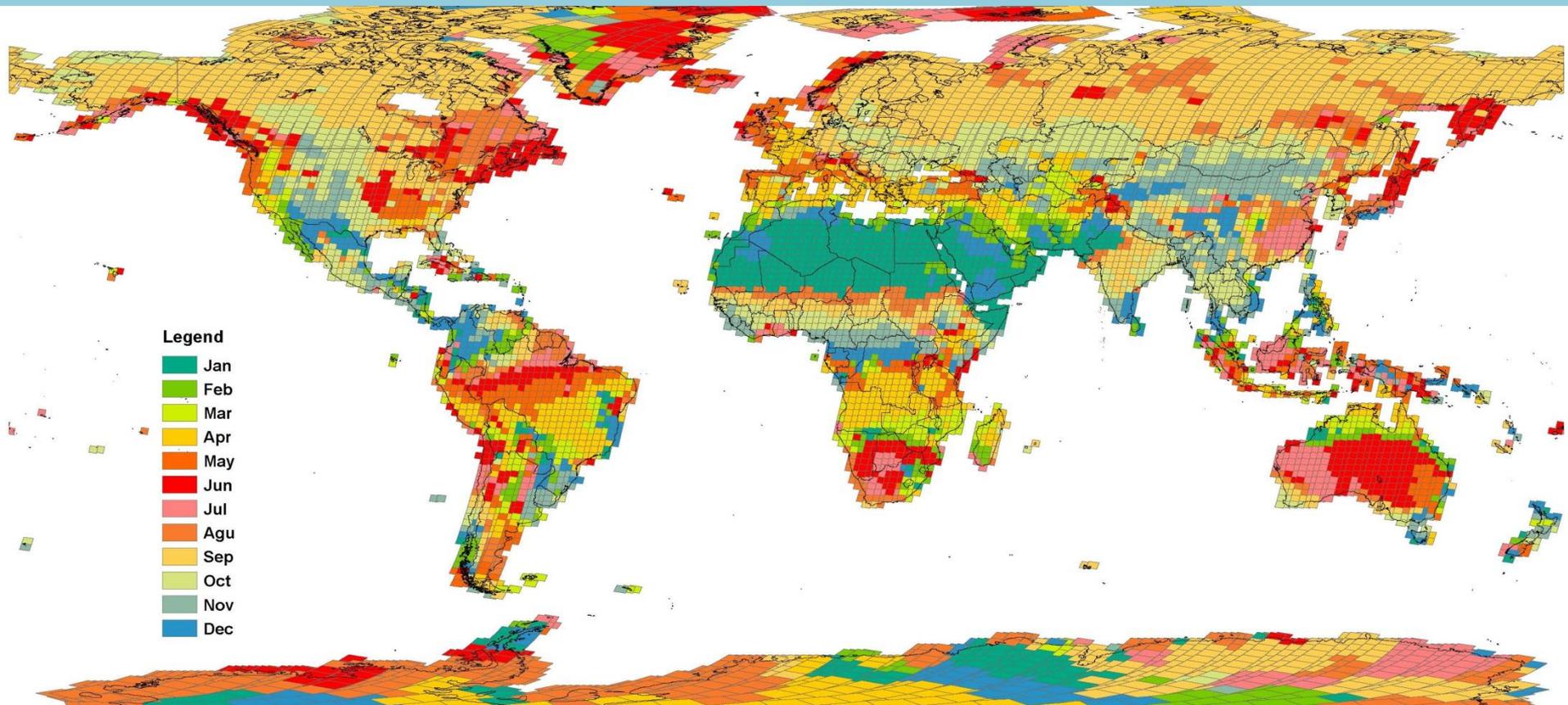
Developing decadal high-resolution global lake products from LDCM and Landsat archive

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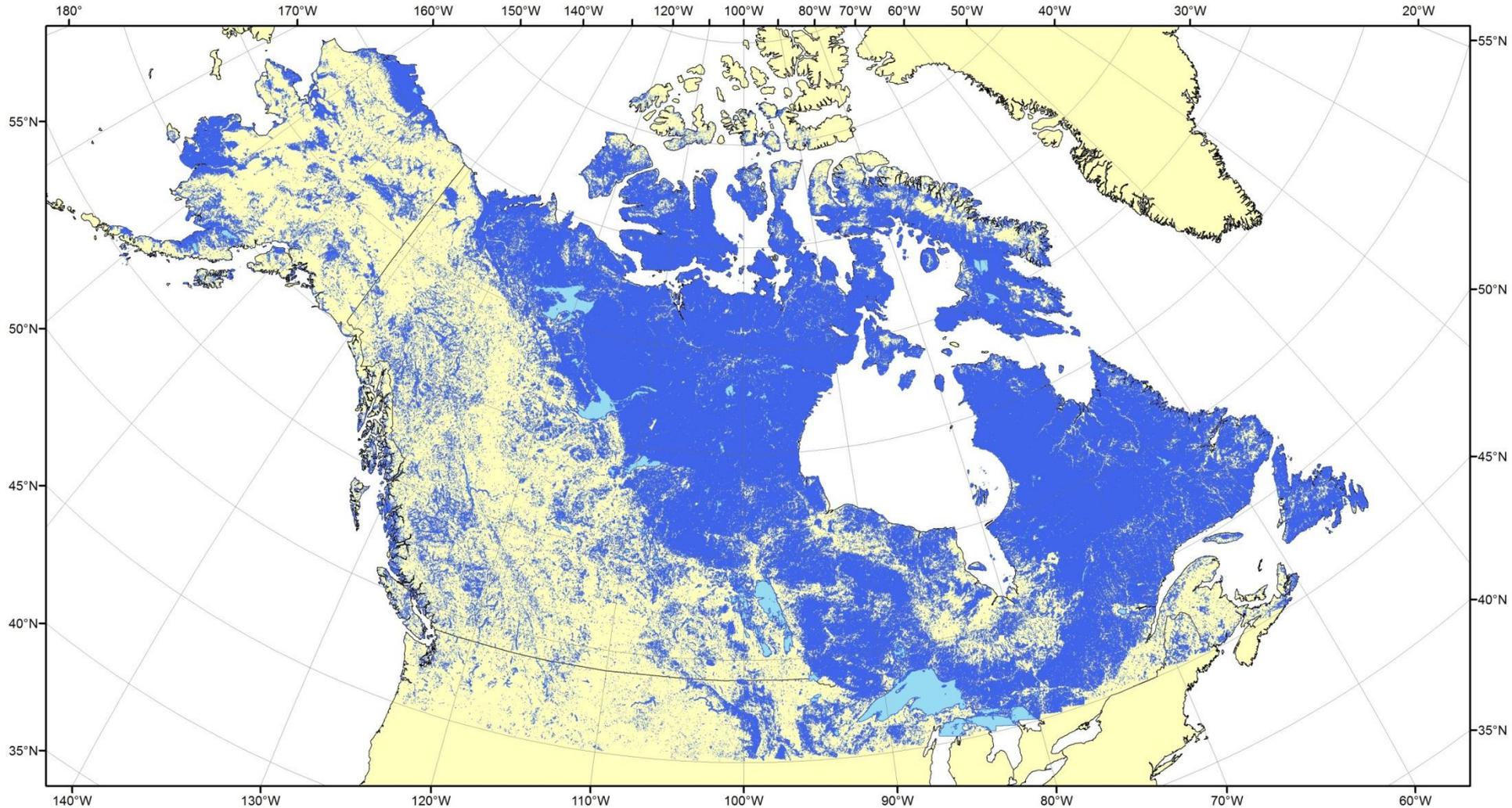
USDA-ARS Hydrology and Remote Sensing Laboratory



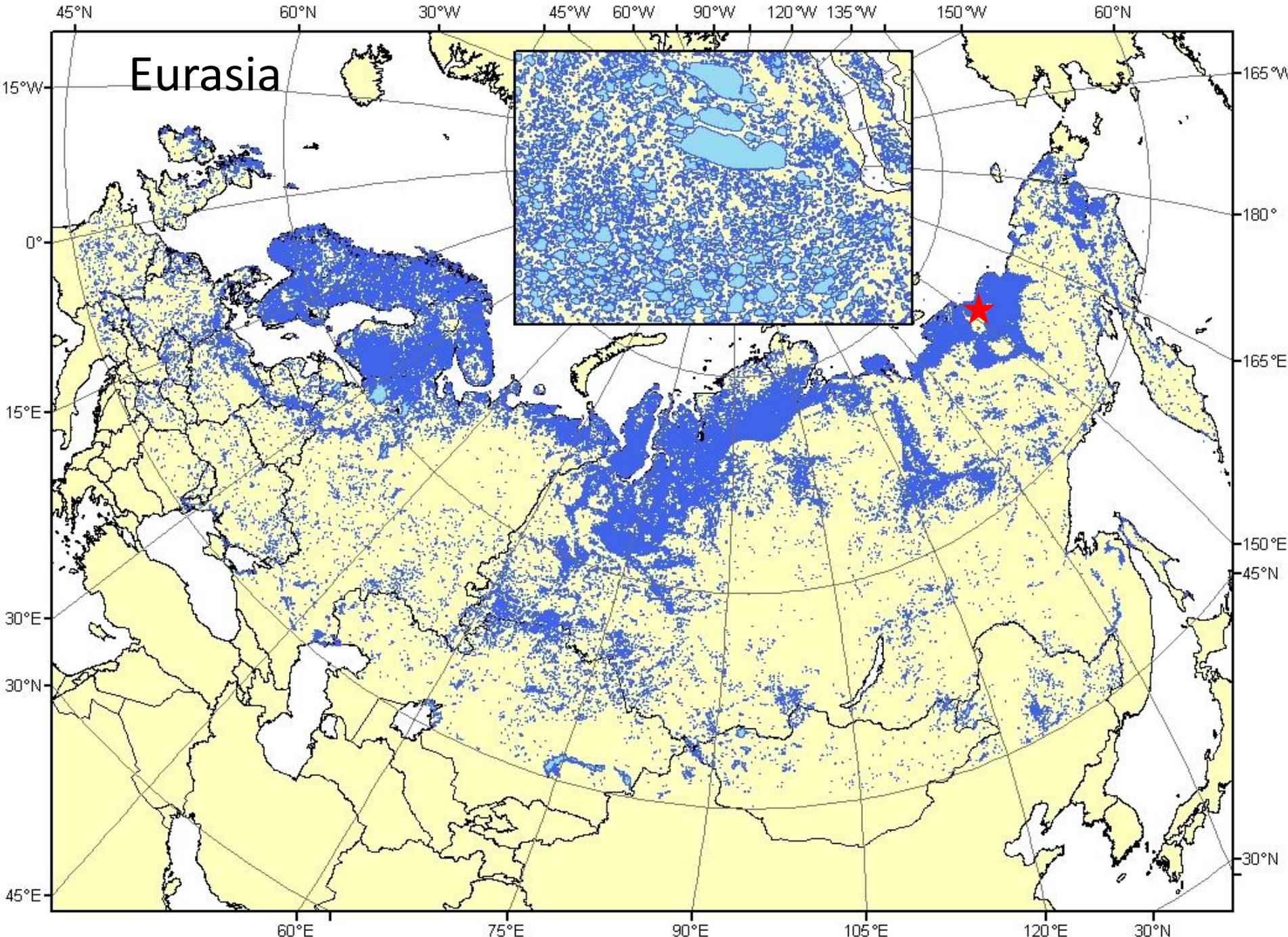
Current Objectives and Activities

- Generating high-resolution systematic global lake products using circa 2000 ETM+ images.
- Tool sharpening for Landsat 8.

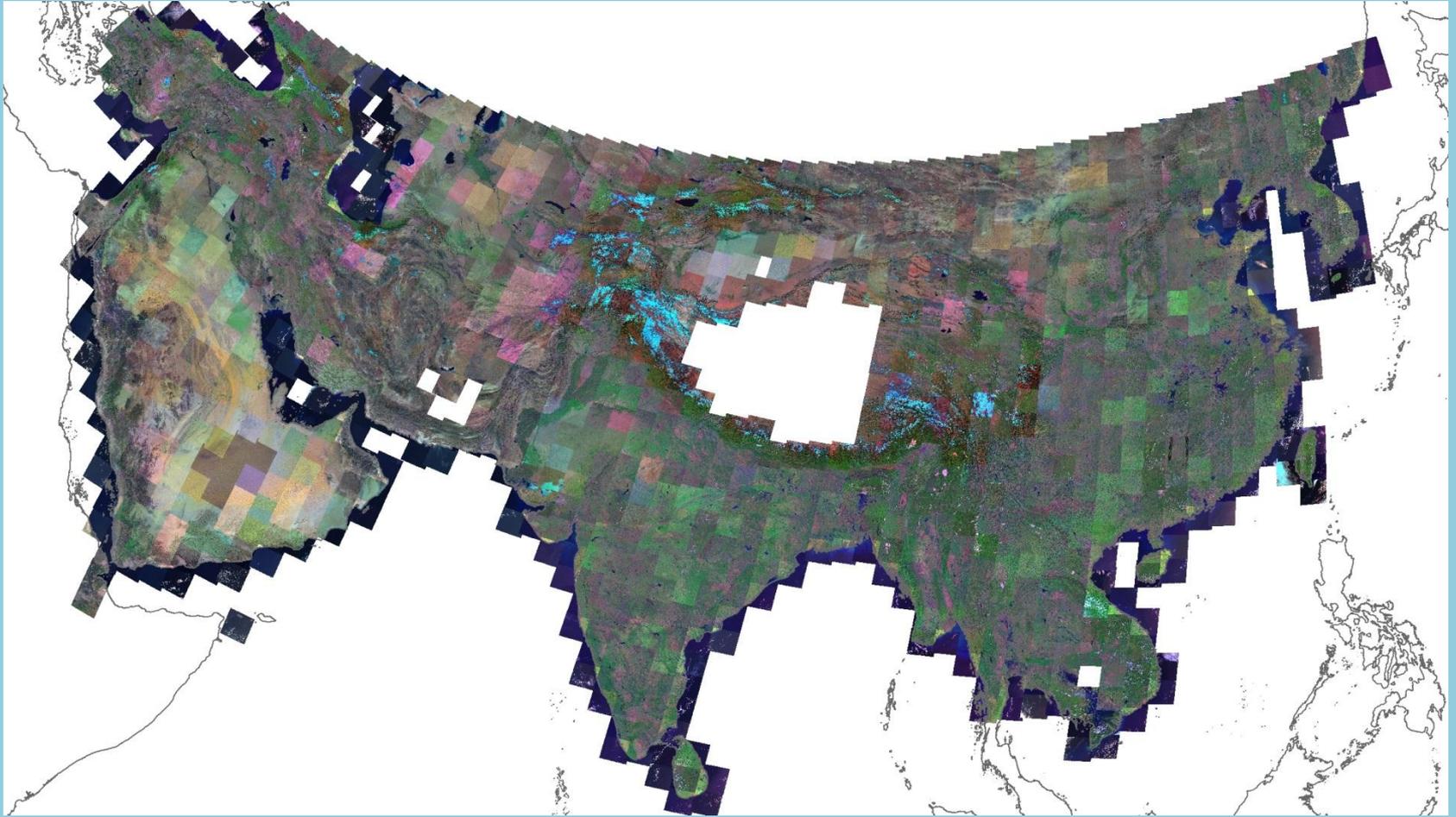
Pan-Arctic Lake Products



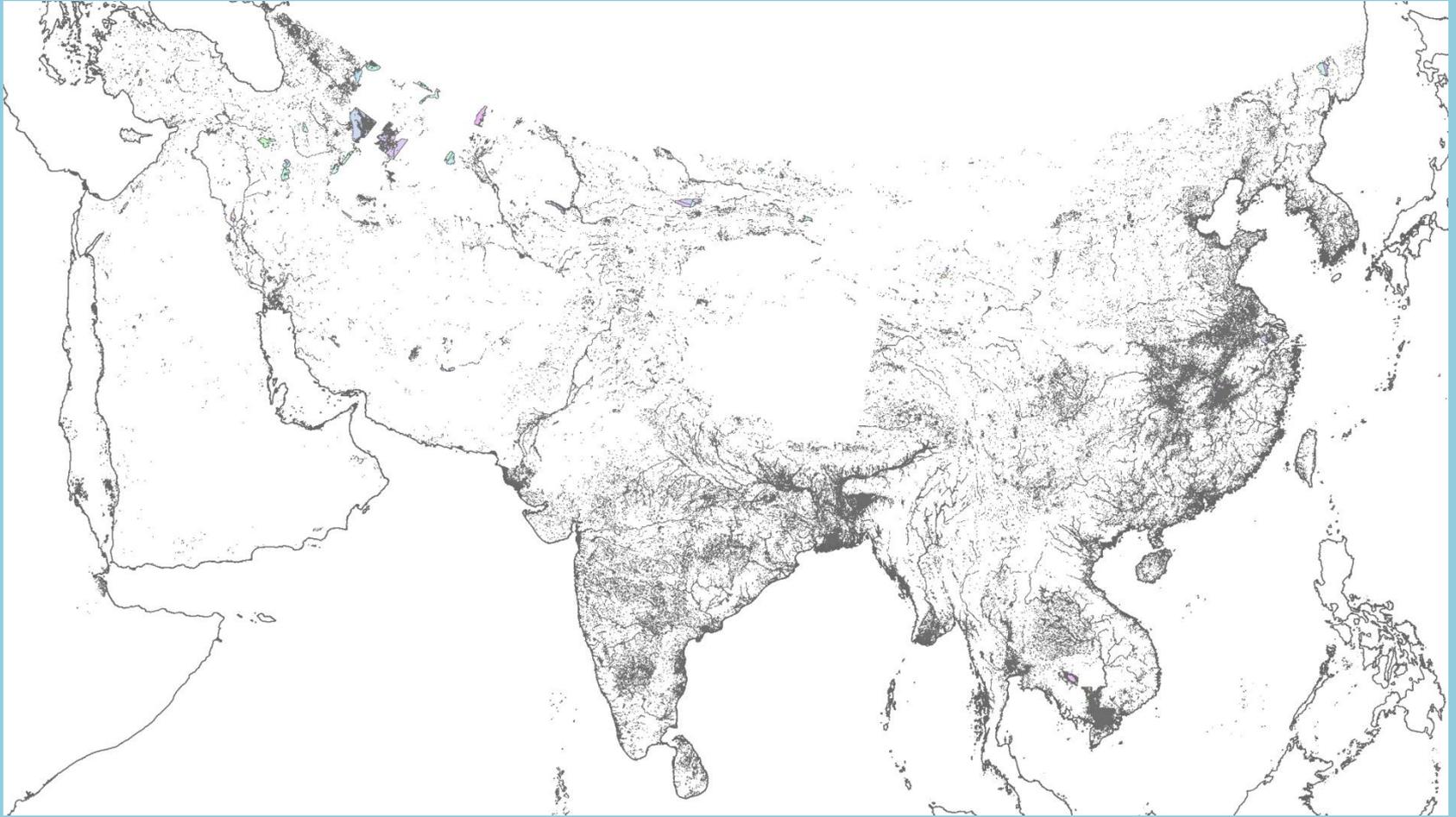
Eurasia



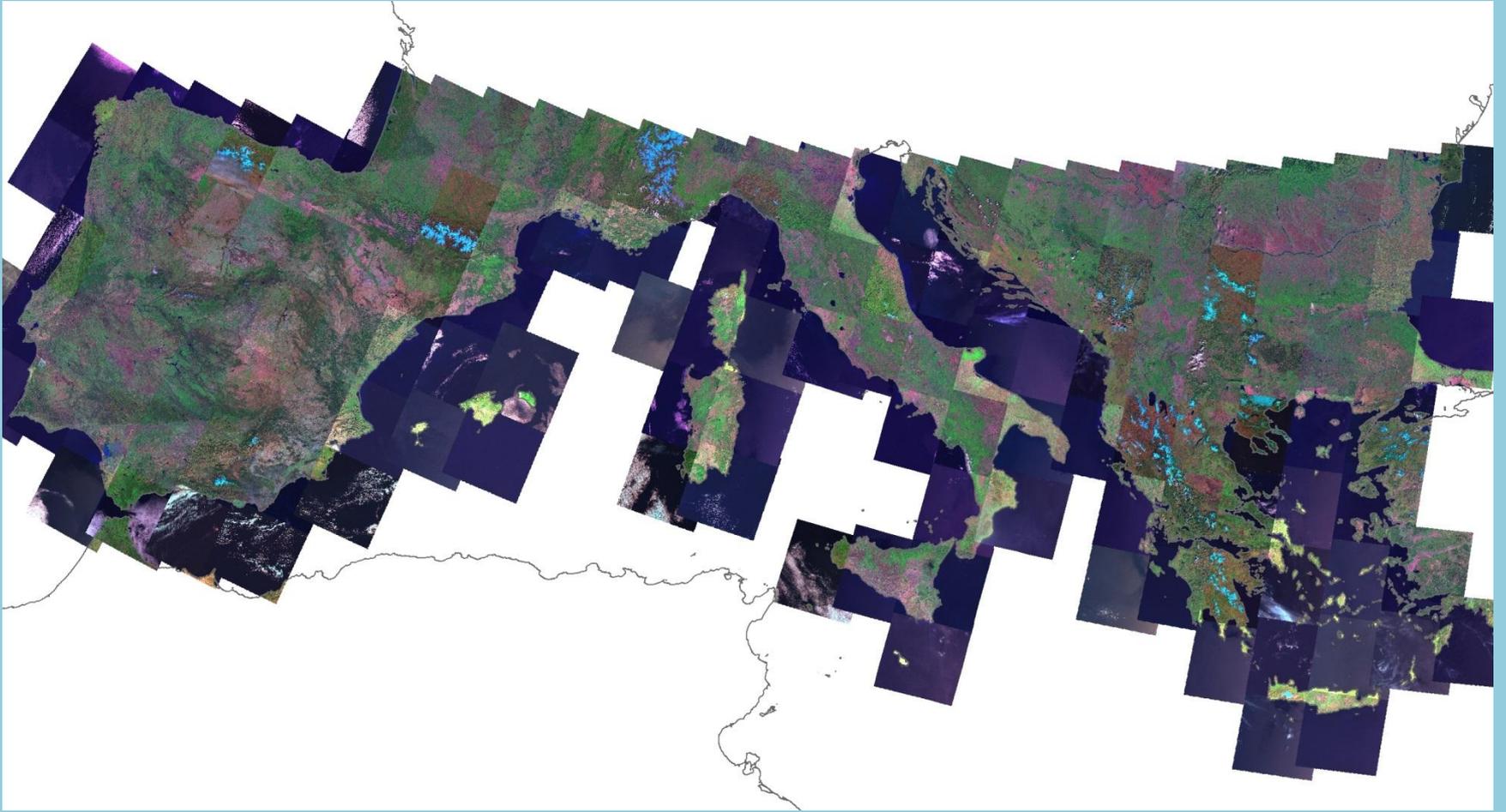
Circa 2000 ETM+ Coverage: Asia



Automated Mapping of Asia



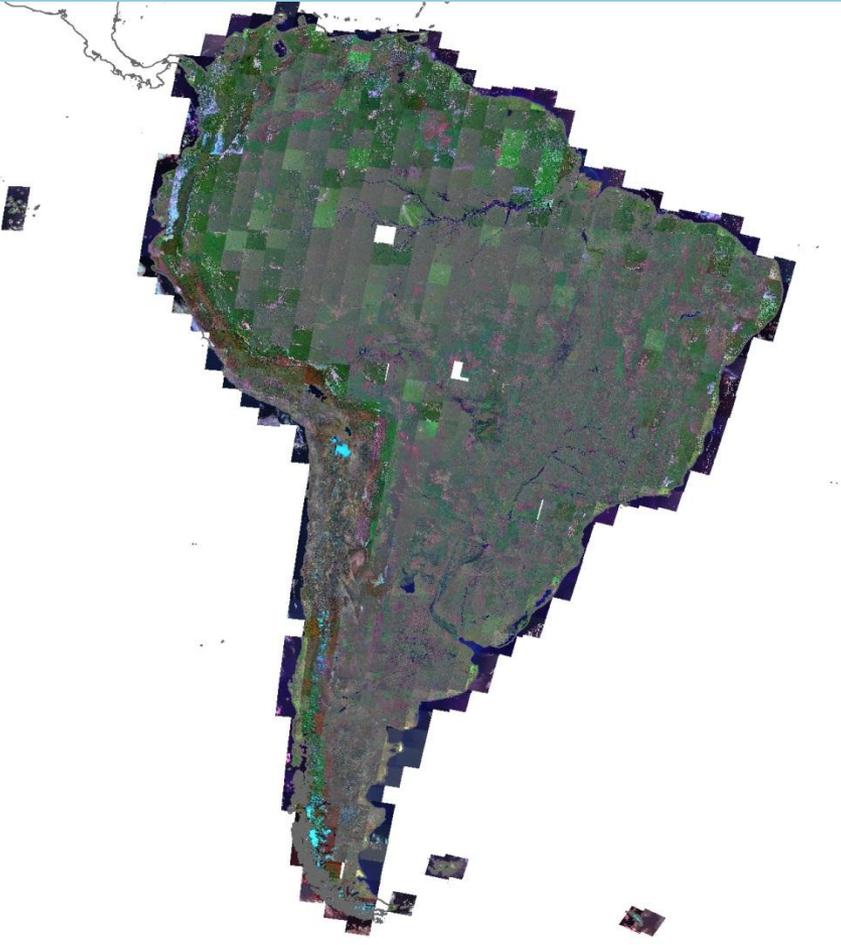
Europe



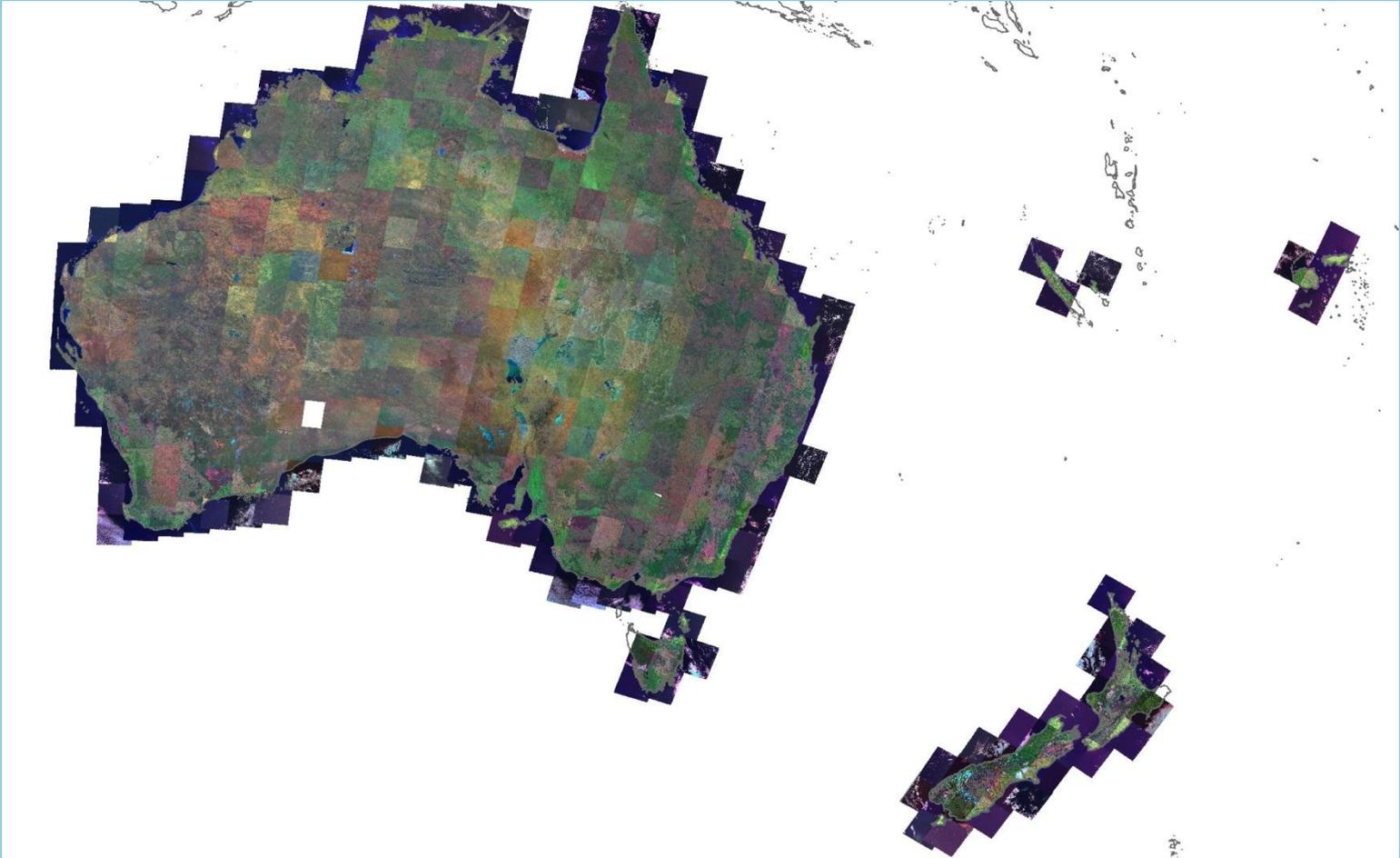
Mapping Europe



South America

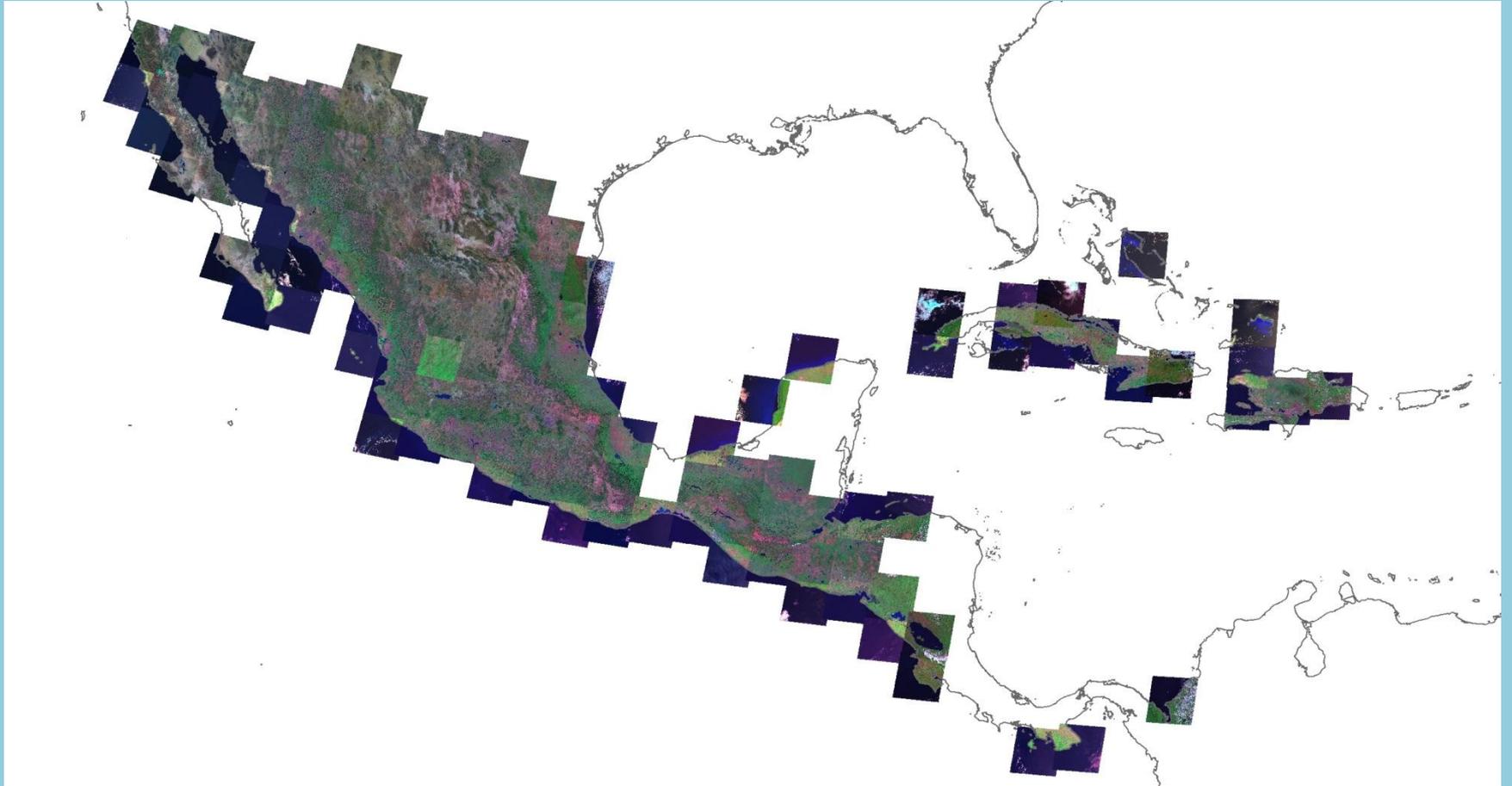


Oceania



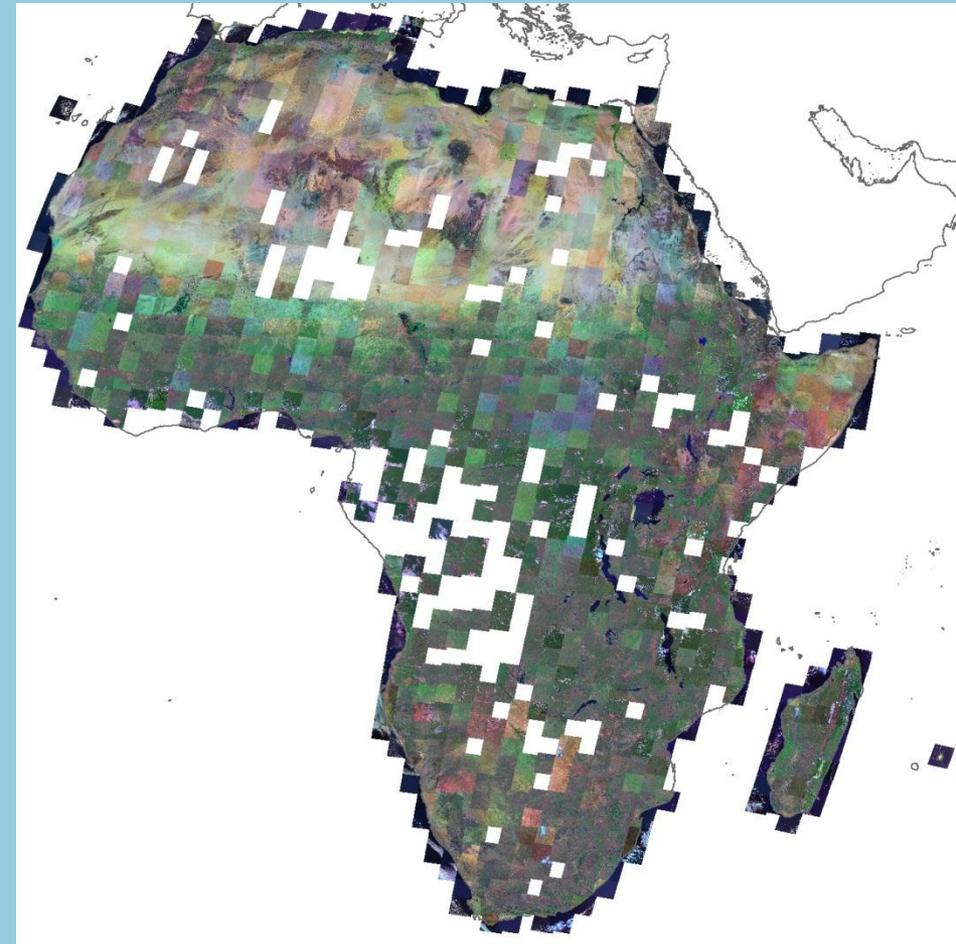


Mexico and Central America

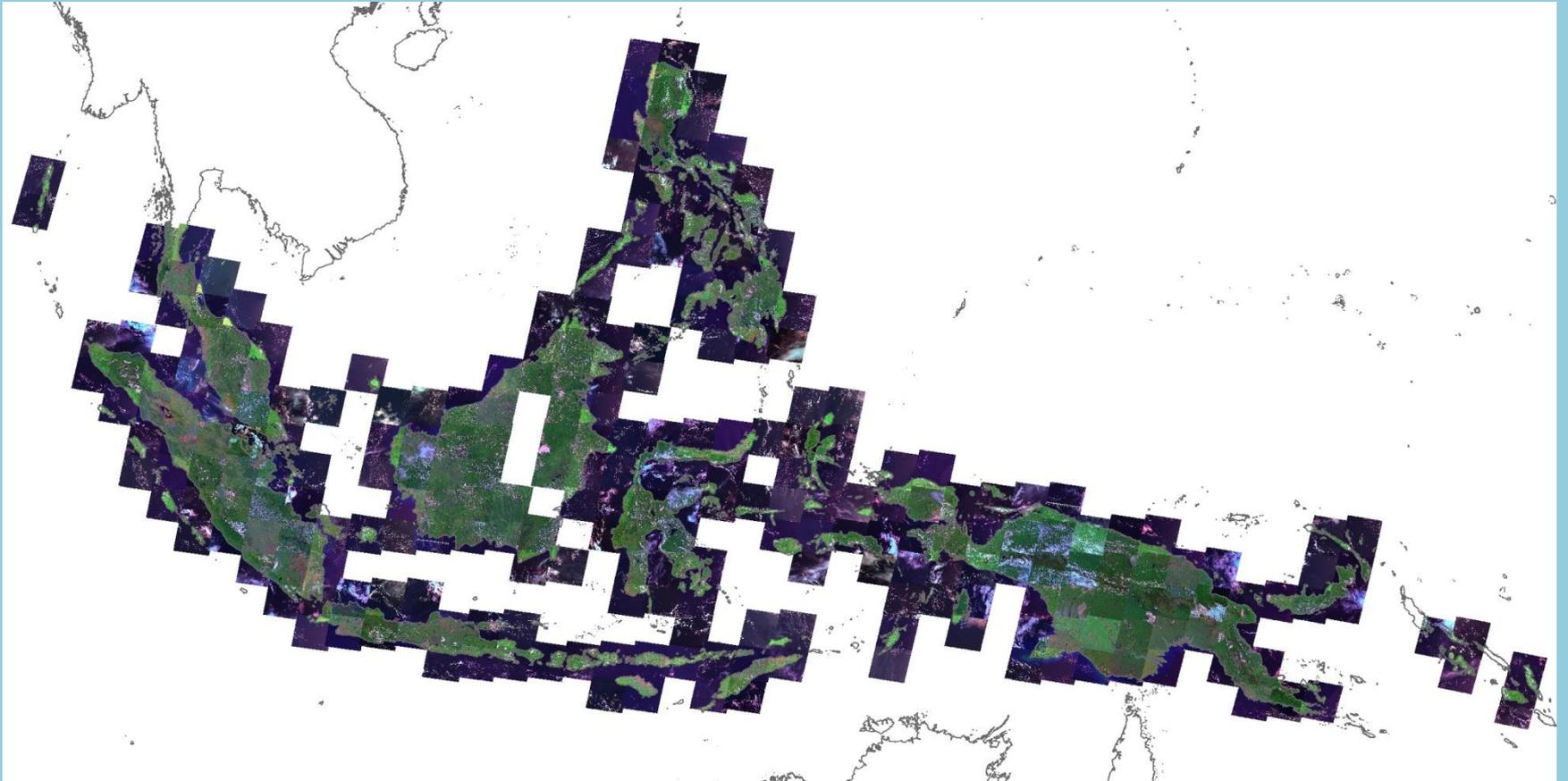




Mapping Africa



South Asia



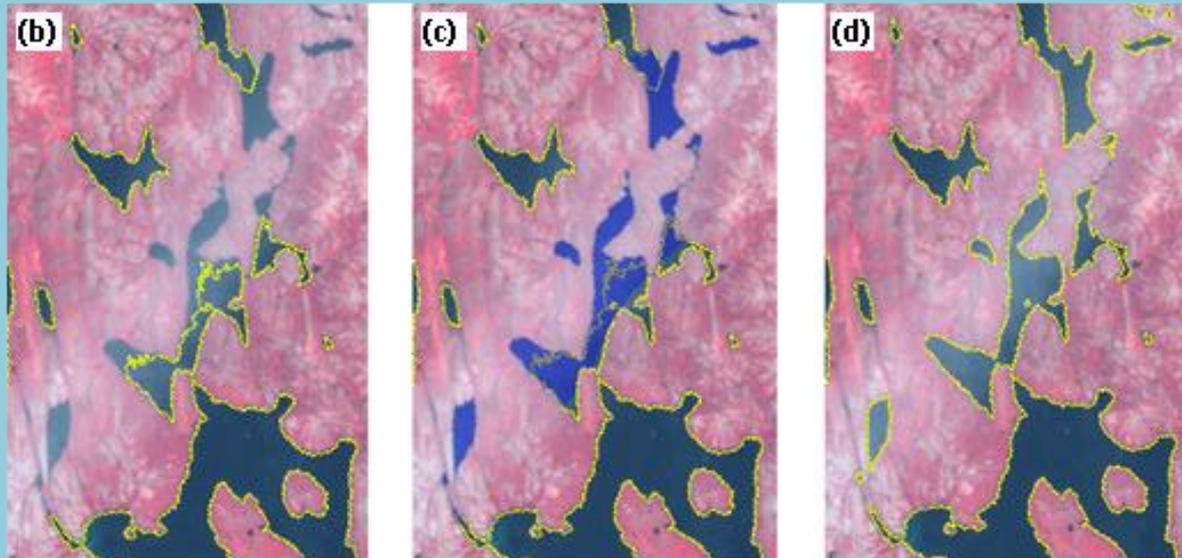
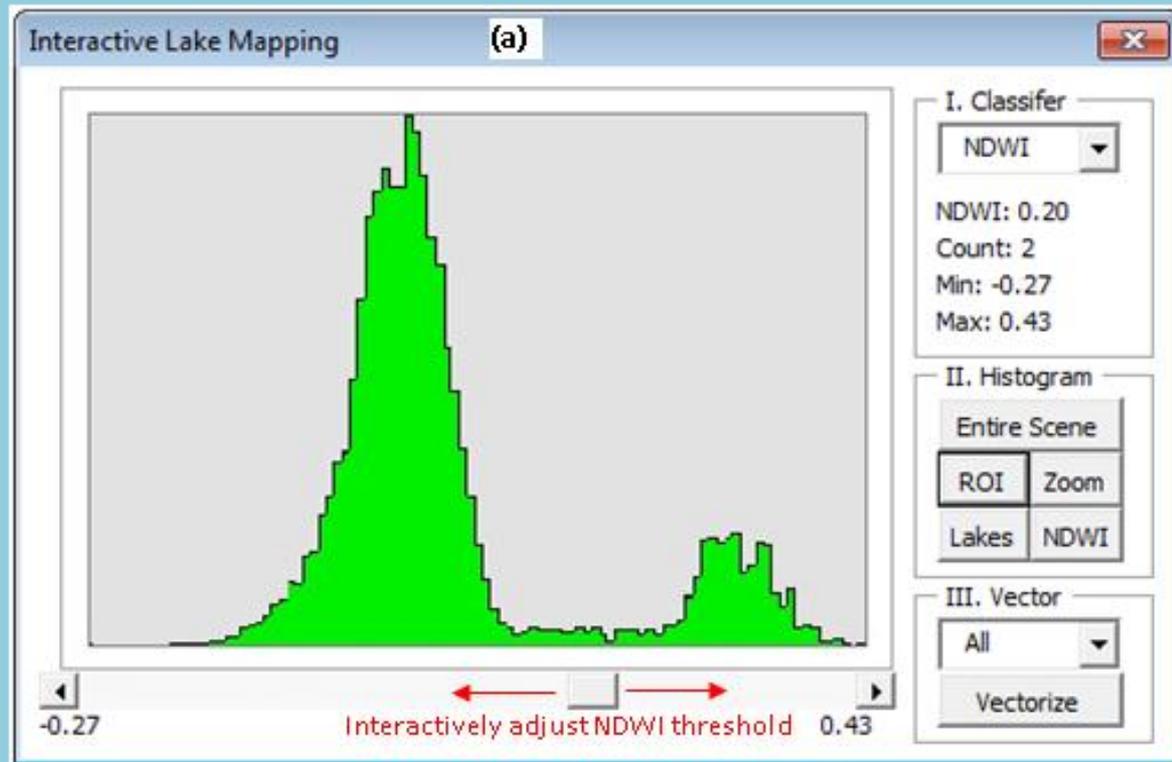
Statistics:

Automated Circa 2000 ETM+ Lake Mapping

Regions	Landsat Images	Lake Abundance
USA	397	668,291
Asia	1,450	1,390,191
Europe	176	80,318
South Asia	376	166,063
South America	984	1,211,078
Central America	169	74,615
Africa	1,086	320,190
Oceania	522	159,522
Total	5,160	4,070,268

Lake Mapping Validation

- Long way to go:
 - Checking
 - Replacing
 - Mosaicking
 - Validating
- Year 2's focus

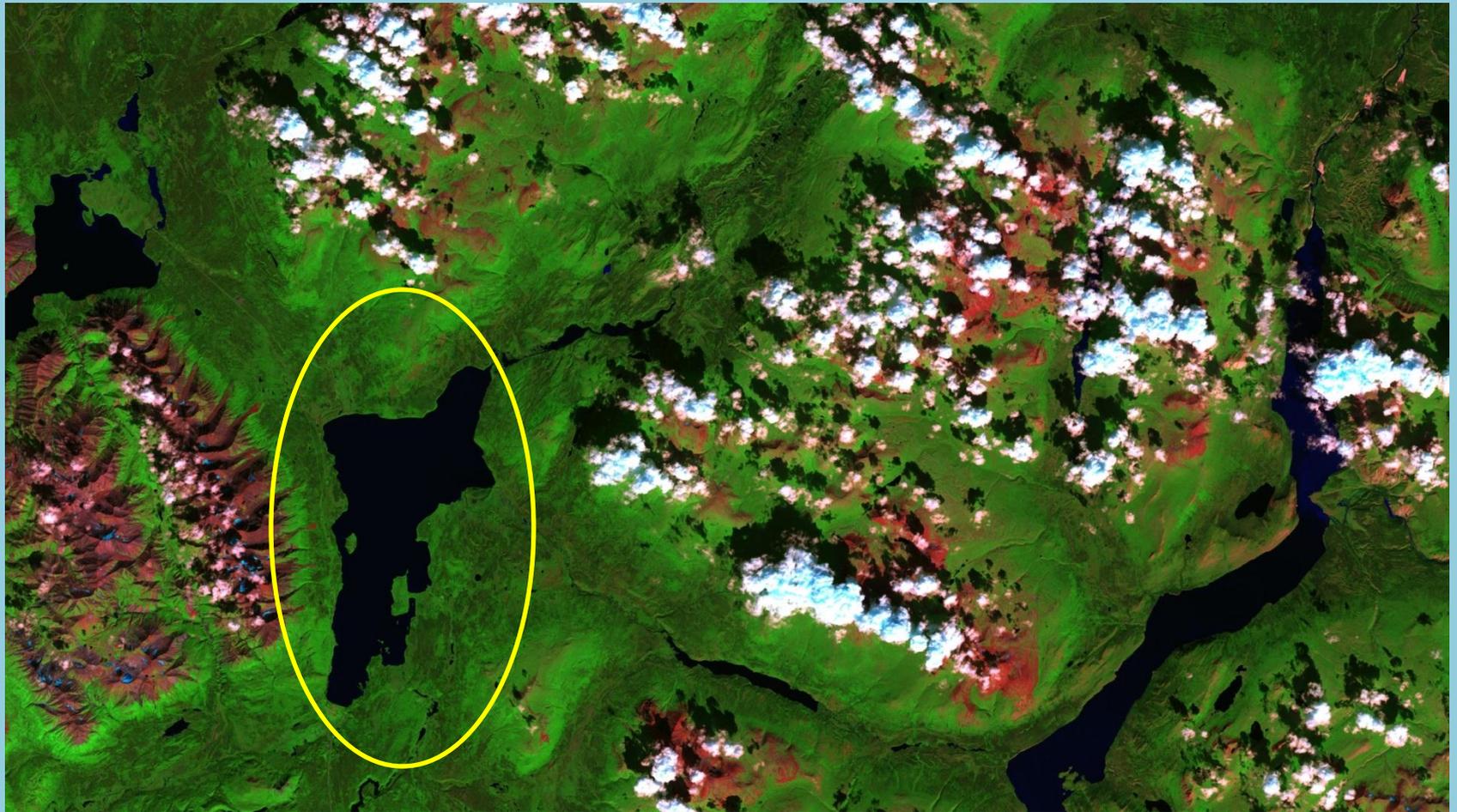


Preliminary experience with Landsat 8

- Sharpening the tools for Landsat 8.
- Evaluating benefits of OLI's low NSR and high radiometric resolution:
 - Easy water-body delineation;
 - Possible water-body detection under cloud contamination.

A comprehensive Landsat 8 image

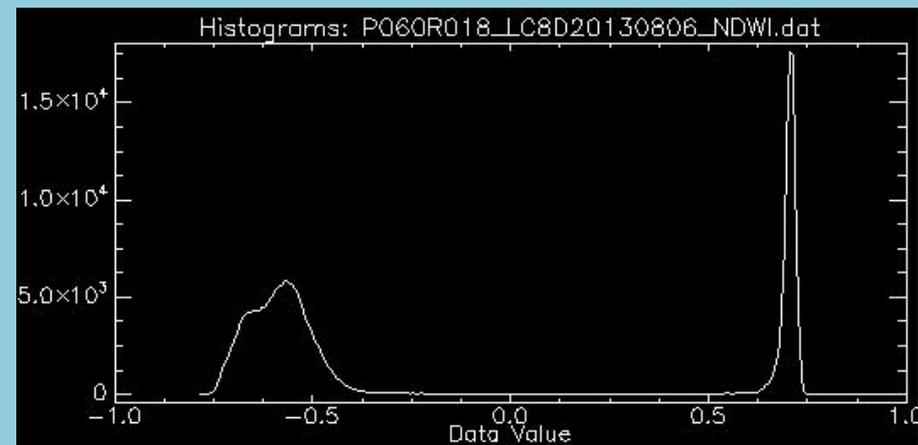
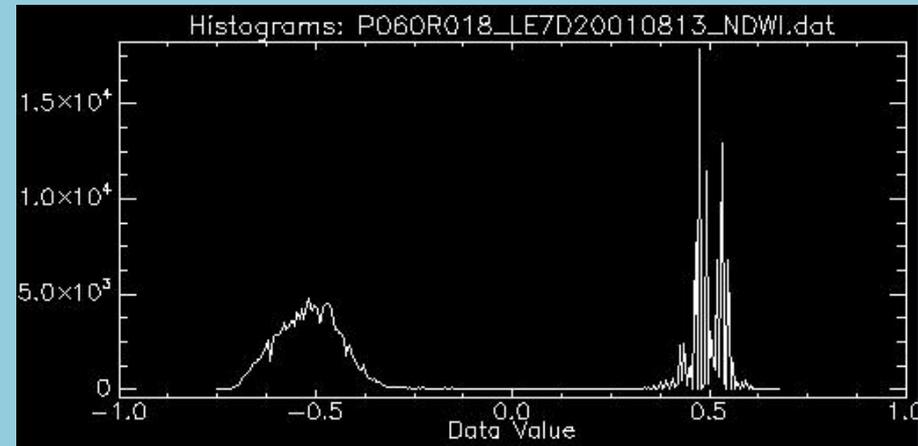
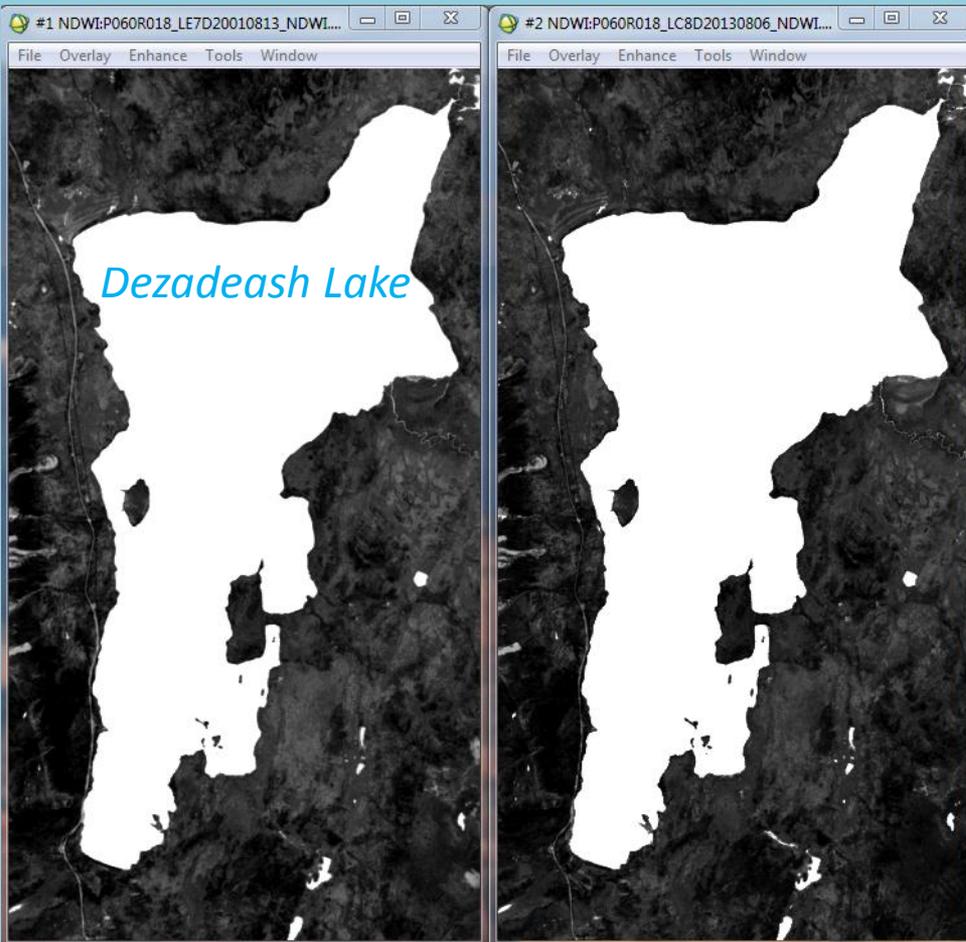
LC8: 08/06/2013



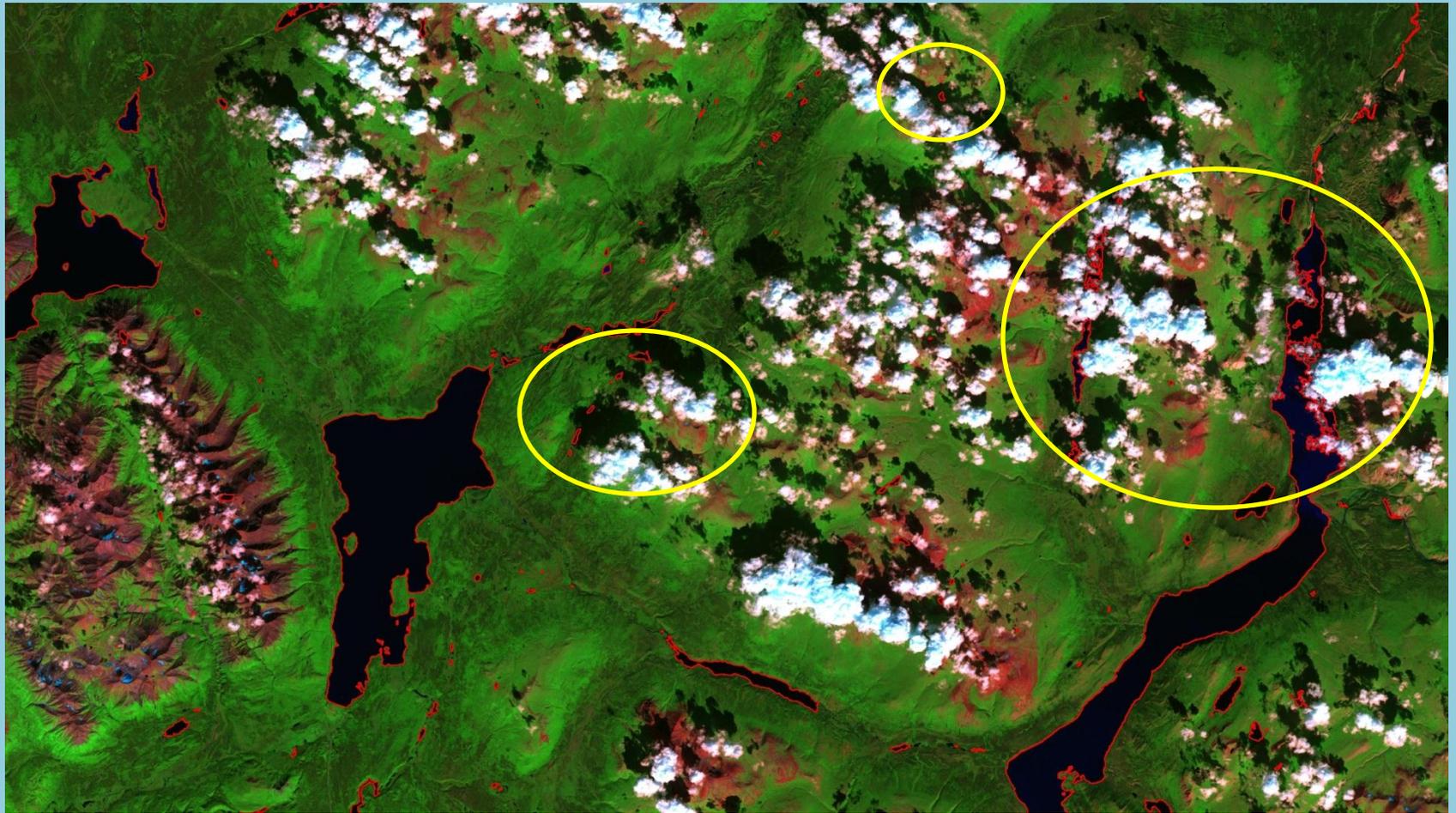
Better water discrimination capability

LE7: 08/13/2001

LC8: 08/06/2013

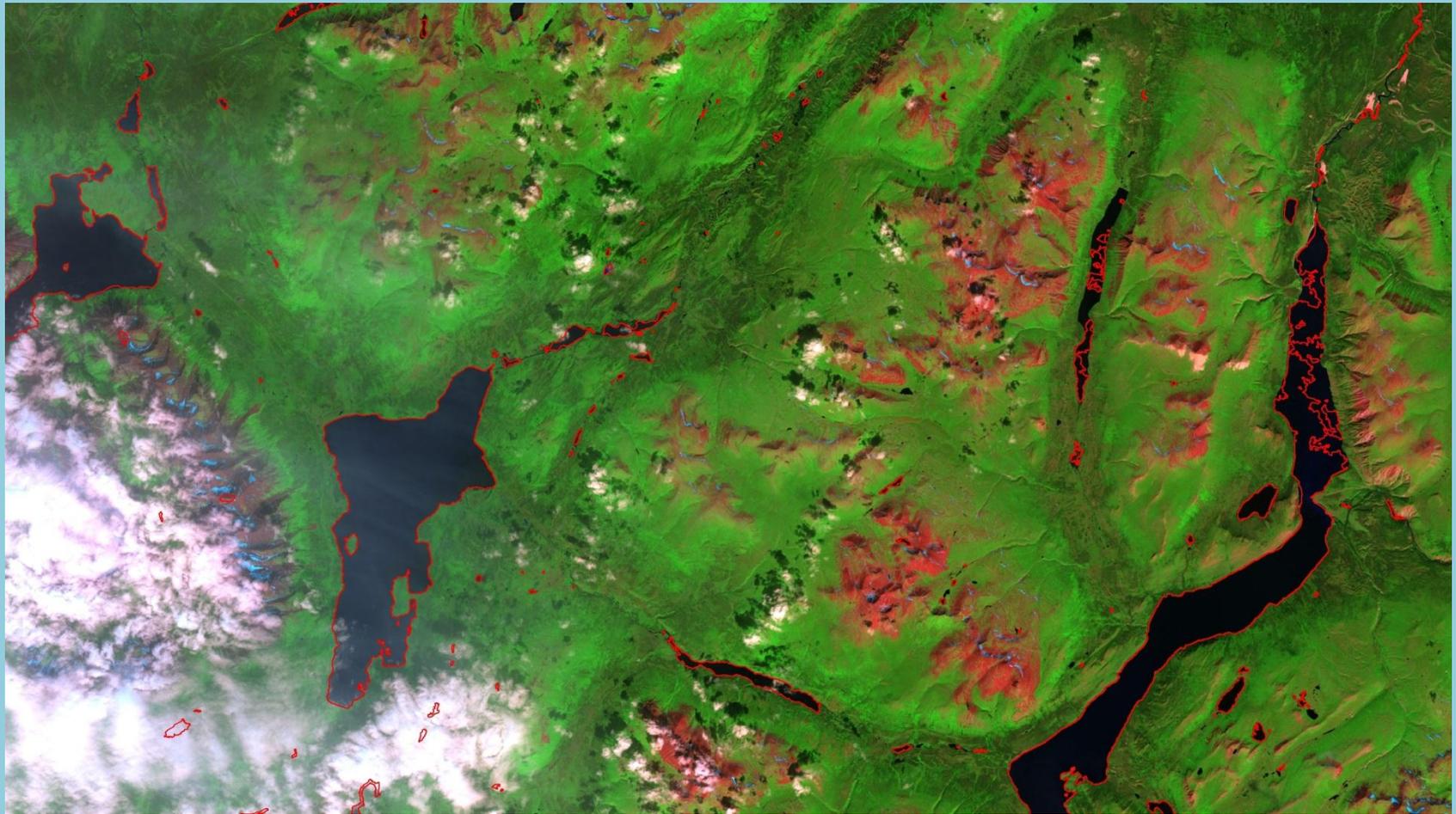


Water bodies identified

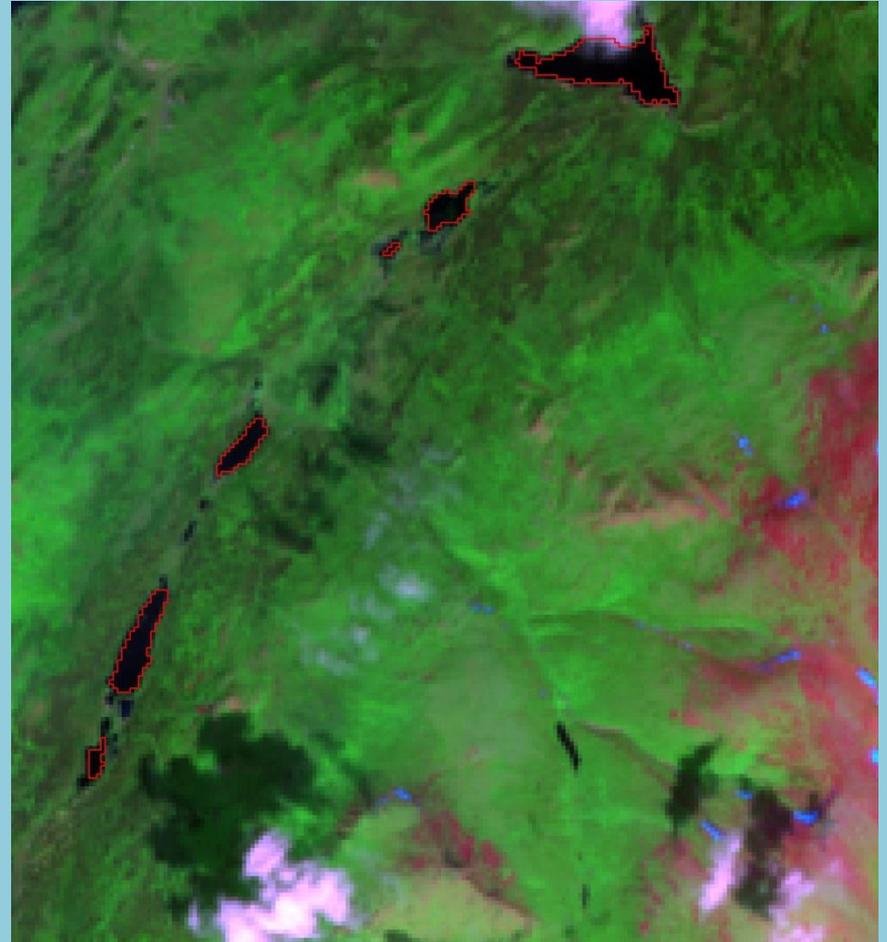
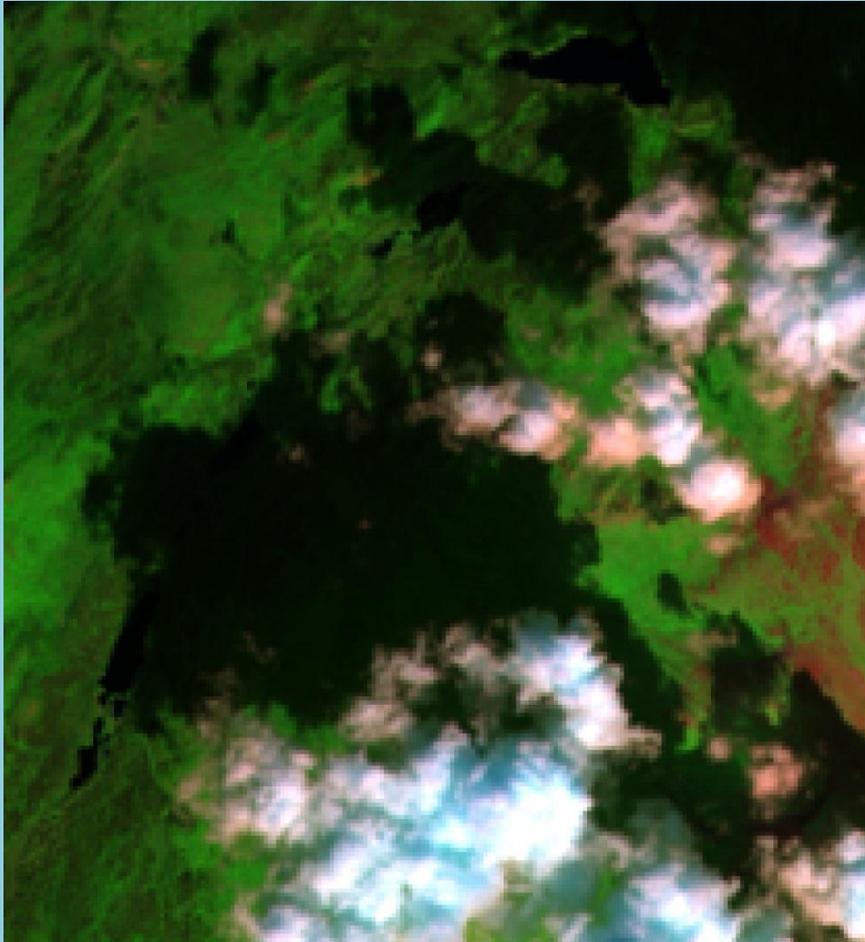


Overlaid on “cloud-free” image

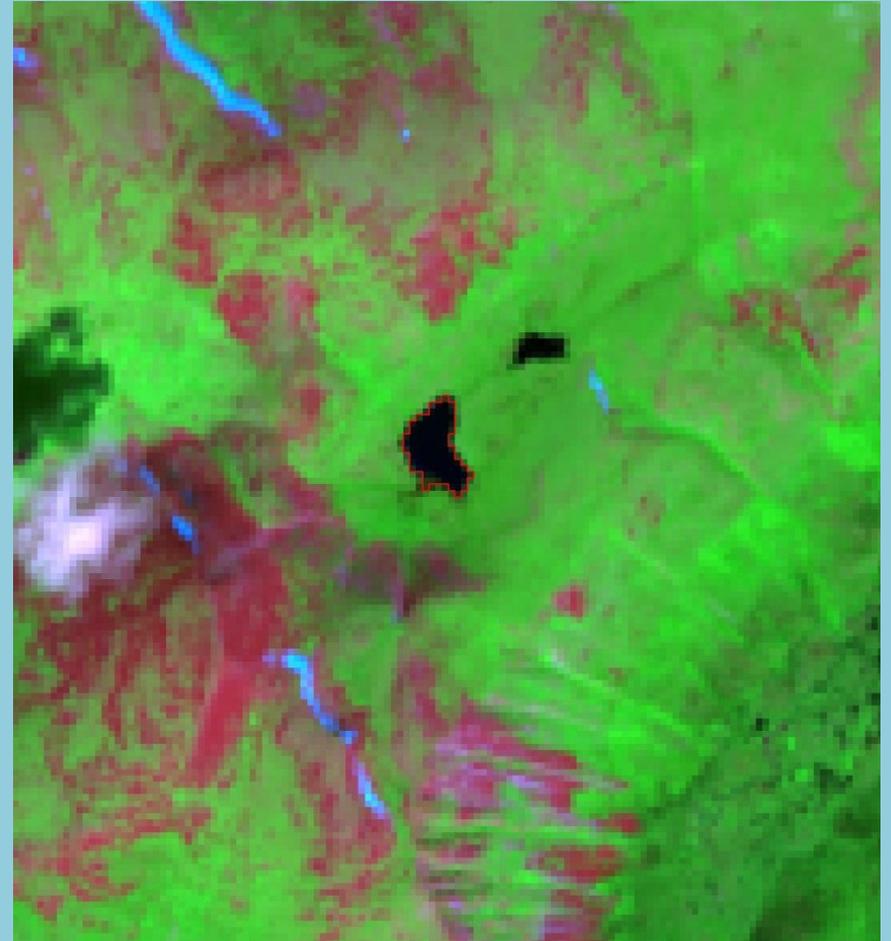
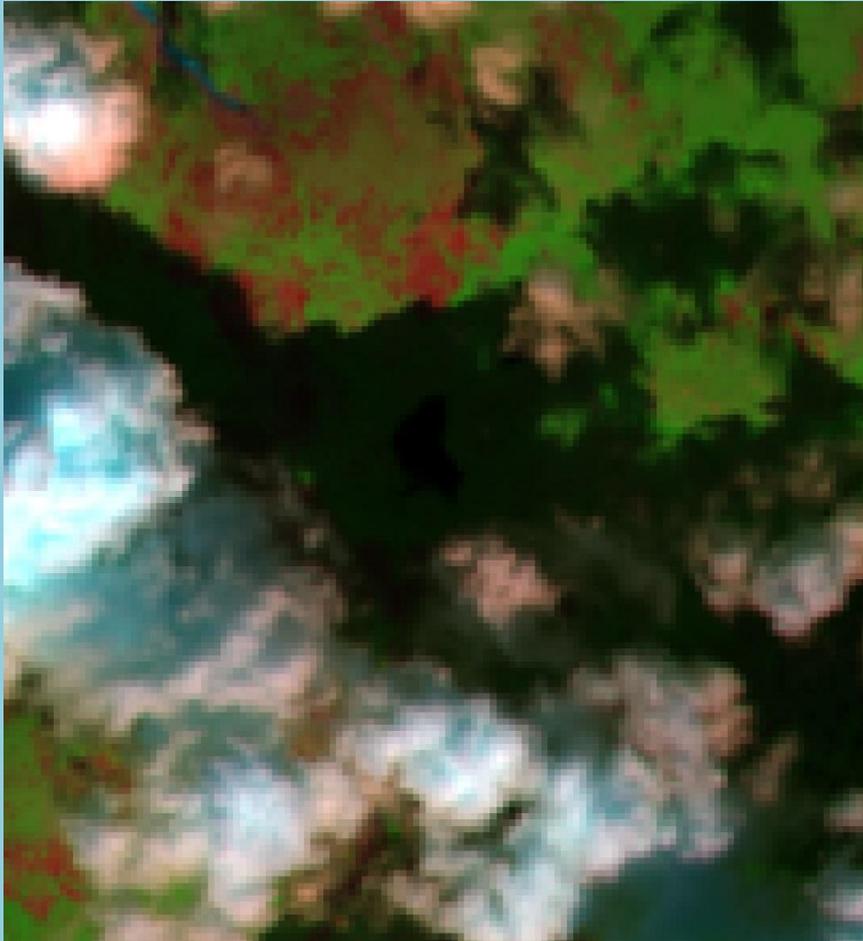
LC8: 07/05/2013



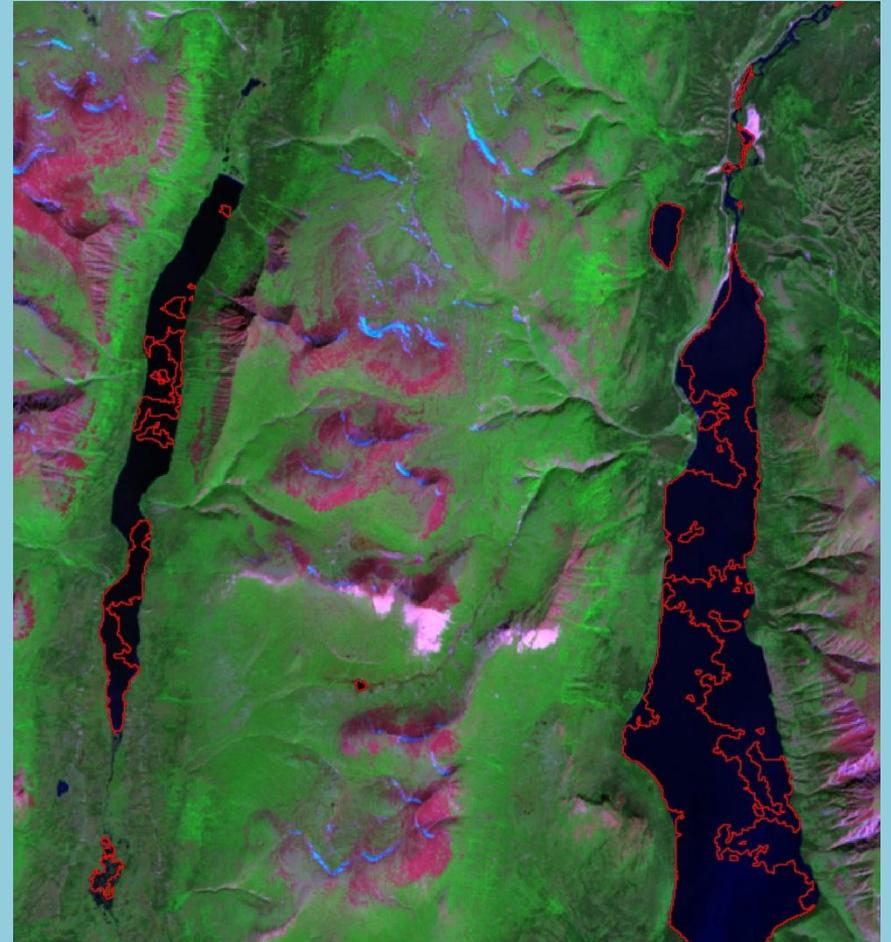
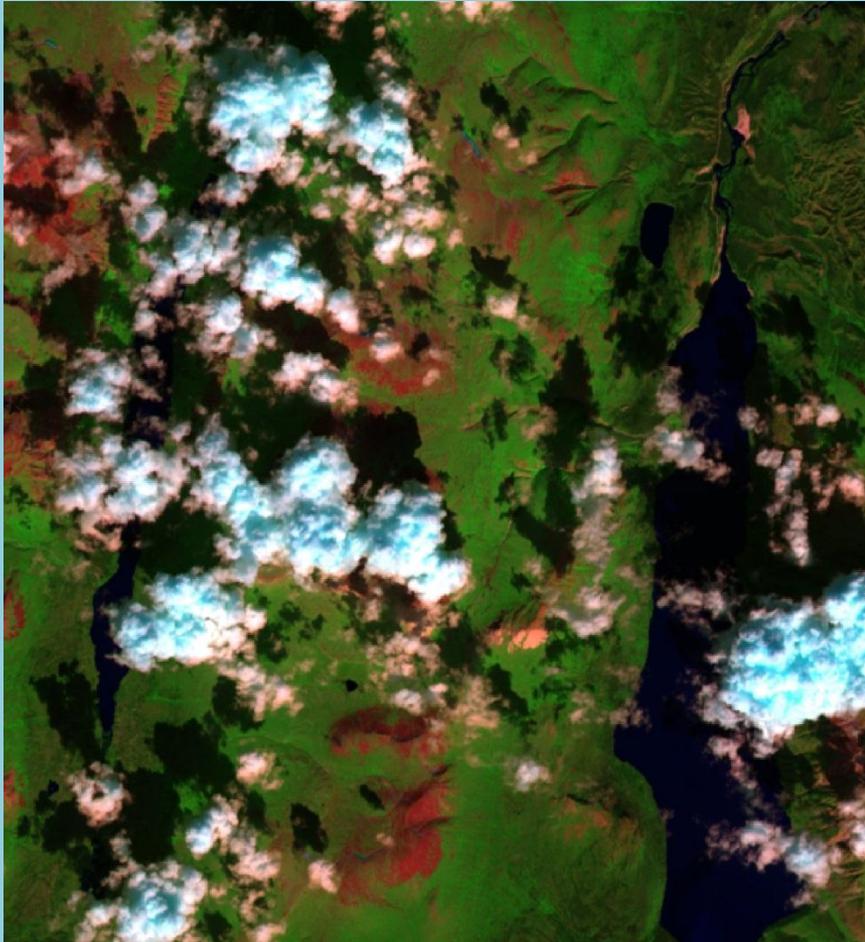
Water body identified in cloud shadow



Catching subtle differences



Clouds needed to be identified

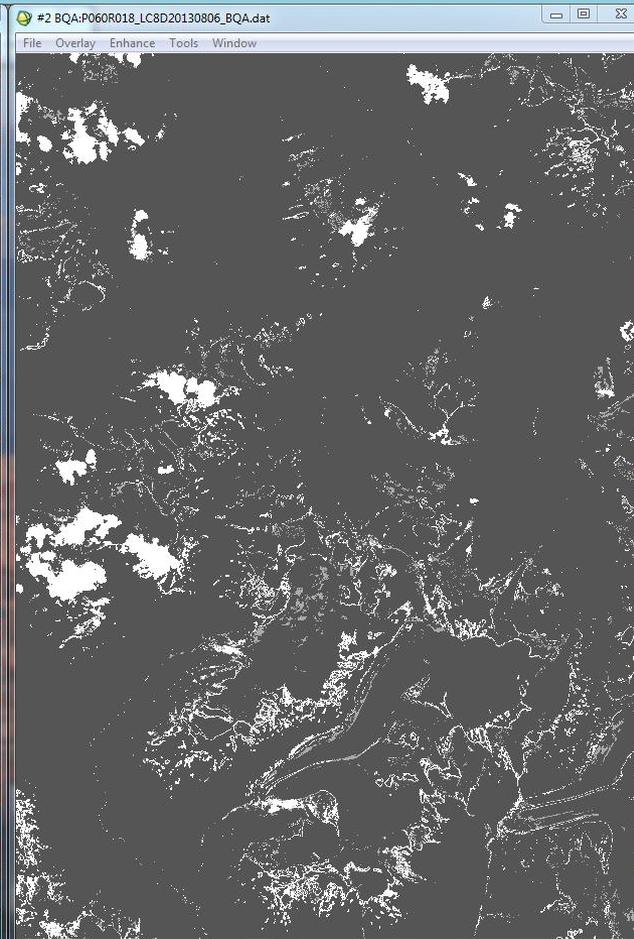


Cloud and shadow detection

LC8: 08/06/2013

Cloud Confidence

Cirrus Band



Contributors

