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

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Current Objectives and Activities

• Generating high-resolution systematic global lake products using circa 2000 ETM+ images.

• Tool sharpening for Landsat 8.
Circa 2000 ETM+ Coverage: Asia
Automated Mapping of Asia
Europe
Mapping Europe
South America
Mexico and Central America
Mapping Africa
South Asia
Statistics:
Automated Circa 2000 ETM+ Lake Mapping

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

Dezadeash Lake
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
Contributors