IDS Combination Center Update
Status of the current combination

G. Moreaux, F. Lemoine, L. Soudarin, and all ACs
• News from IDS CC

• Routine evaluation status

• Evaluation of new ESA and GSC series implementing stations frequency correction

• Feedback on origin of 2 Acs families wrt scale
What’s new?

Test on the introduction on rotations thresholds to try to avoid shifts in EOPs formal errors

➤ New evaluation reports contain rotation parameters
➤ Unsuccessful

New plotool version to visualize Helmert parameters

http://www.ids-doris.org/plottool/stcd/7ptool.php
## Delivery status (on 2013-04-03)

<table>
<thead>
<tr>
<th>Series</th>
<th>Last week</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>ESA 06</td>
<td>12288</td>
<td>Delivery to IDS DCs 07 ?</td>
</tr>
<tr>
<td>GOP 34</td>
<td>12358</td>
<td></td>
</tr>
<tr>
<td>GSC 18</td>
<td>12365</td>
<td></td>
</tr>
<tr>
<td>IGN 08</td>
<td>13055</td>
<td></td>
</tr>
<tr>
<td>INA 07</td>
<td>13034</td>
<td></td>
</tr>
<tr>
<td>LCA 30/32</td>
<td>12358</td>
<td>No more series 32 including HY-2A after 12309 ?</td>
</tr>
</tbody>
</table>
• Time period = 2009-001 to 2012-365
• IDS combined solution until 12267
• No ESA 07
• GSC 18 from 12274

• Scale increases since Dec 2011
• 2 ACs families wrt scale
Mean/std of Scale factor, Tx, Ty and Tz

<table>
<thead>
<tr>
<th></th>
<th>ESA 06</th>
<th>GOP 34</th>
<th>GSC 18</th>
<th>IGN 08</th>
<th>INA 07</th>
<th>LCA 30</th>
<th>LCA 32</th>
</tr>
</thead>
<tbody>
<tr>
<td># weeks</td>
<td>3</td>
<td>13</td>
<td>14</td>
<td>14</td>
<td>14</td>
<td>8</td>
<td>5</td>
</tr>
<tr>
<td>Scale [mm]</td>
<td>2012 q4</td>
<td>9.76/1.21</td>
<td>15.71/2.36</td>
<td>4.64/2.78</td>
<td>13.49/3.24</td>
<td>12.74/4.72</td>
<td>10.51/1.44</td>
</tr>
<tr>
<td>Tx [mm]</td>
<td>2012 q4</td>
<td>-2.77/2.61</td>
<td>-1.77/4.46</td>
<td>-10.86/5.91</td>
<td>-1.09/6.76</td>
<td>-4.43/5.57</td>
<td>-12.53/3.32</td>
</tr>
<tr>
<td>Ty [mm]</td>
<td>2010 q4</td>
<td>--10.17/2.96</td>
<td>-8.49/2.66</td>
<td>-19.84/3.80</td>
<td>-17.32/4.67</td>
<td>-15.71/4.55</td>
<td>-10.24/2.27</td>
</tr>
<tr>
<td>Tz [mm]</td>
<td>2010 q4</td>
<td>-12.70/16.06</td>
<td>10.58/10.18</td>
<td>-0.45/10.10</td>
<td>19.54/24.91</td>
<td>24.77/20.24</td>
<td>0.44/14.36</td>
</tr>
</tbody>
</table>

Tz std is at the order of Tz mean or even larger
• Time period = 2000-001 to 2003-365

• **Two families of scale since early 2002**
  One group (esa, gsc) did not into account beacon frequency shifts
  Early 2002, beacon frequency estimates were not anymore in DORIS data files
• Time period = 1993-003 to 2012-141  
• Major impact on scale (after 2002) !!!
• Minor differences on EOPs
ESA 07 vs ESA 06
Differences of Helmert parameters

Per week comparison to ITRF2008

Legend:
- esawd06-esawd07

Number of stations for 7p

Number of stations

WRMRS (mm)

TY (mm)

TZ (mm)

Scale (mm)
GSC 18 vs GSC 15
Helmert parameters wrt ITRF2008

- Time period = 1993-003 to 2012-344  
  Per week comparison to ITRF2008
- Major impact on scale (after 2002) !!!
GSC 18 vs GSC 15
Differences of Helmert parameters

Per week comparison to ITRF2008

Legend:
- gscwd15-gscwd18

Number of stations

0 1 2 3

TX (mm)

-10 -8 -6 -4 -2 0 2 4 6 8 10

WRMS (mm)

-5 -3 -1 1 3 5

Scale (mm)

-10 -8 -6 -4 -2 0 2 4 6 8 10 12
For ESA, main differences before 2002
For both ESA and GSC, nice impact of the number of DORIS satellite after 2002
Method:
• Stacking of each series over time period 1993-001 to 2008-365
• Projection of stations positions at minimum variance epochs
• For each solution, coordinates differences at epochs of latest series solution

Conclusions:
High differences from 1993 to 2008 are due to differences before 2002
Differences can be higher than 20mm
• **Origin of 2 Acs families wrt scale is identified: beacon frequency variations**

• **With new series (esa 07 and gsc 18), one unique AC family wrt scale**

→ more homogeneous scale for IDS contribution to ITRF2013

Next: ITRF2013