Automated Monitoring of CORSnet-NSW using the Bernese Software

Joel Haasdyk, Craig Roberts and Volker Janssen

Joel Haasdyk
GNSS Surveyor, CORSnet-NSW
Survey Infrastructure and Geodesy
NSW Land and Property Management Authority
Station Coordinates and Velocities

CORSnet-NSW coordinates are determined in the global ITRF05 datum, then fixed to first-order geodetic network.

Distortions exist between ‘local’ and ‘global’ realisations of the national datums:
- GDA94 (Hz) up to 200m
- AHD71 (Vt) up to 300m
Conclusions

- Bernese is a suitable software platform.
- mm-level automated monitoring is possible:

<table>
<thead>
<tr>
<th>Precision obtained from 60 days data</th>
<th>Horizontal</th>
<th>Vertical</th>
</tr>
</thead>
<tbody>
<tr>
<td>Coordinate Precision</td>
<td>1-2 mm</td>
<td>2-5 mm</td>
</tr>
<tr>
<td>Velocity Precision</td>
<td>2-4 mm/yr</td>
<td>7-15 mm/yr</td>
</tr>
</tbody>
</table>

- Longer time series yield increased precision.
- Distortions between local and global coordinates present a significant issue for users.
- Highlights need for a new National Datum (3D).