Chair of Engineering Geodesy
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Strategies for deformation analysis of large radio telescopes' main reflectors

Background and state-of-the-art

- Radio telescopes and VLBI are used to determine the earth's reference frame, position in space and local tie vectors
- Focal lengths of the radio telescopes vary with pointing direction
- The shape and its variation can be derived from laser scan data

Research questions

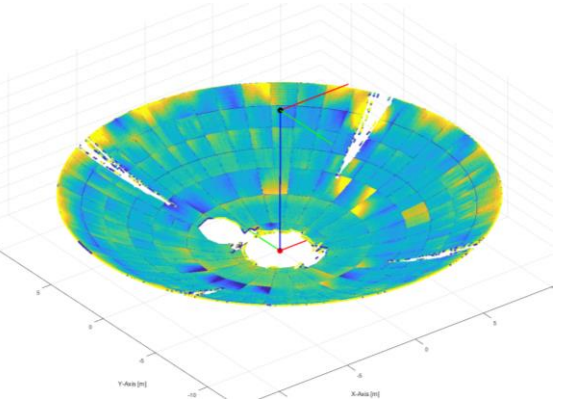
- Which workflow can be implemented to efficiently determine focal length changes of large radio telescopes?
- How can laser scanner misalignments during processing be eliminated?
- Which scanning instrumentation do we need to detect those deformations?

Research methods

- In-situ calibration during focal length estimation
- Shape parametrization of radio telescope surface

26 m radio telescope at HartRAO Southafrica

Mounted Laserscanner



Residuals related to a rotation paraboloid

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