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Preliminary site survey for a laser interferometer gravitational-wave observatory (LIGO) for South Africa

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Abstract content
 (Max 300 words)

Within the framework of the LIGO Scientific Collaboration, a preliminary site survey was done to establish whether a suitable location could be found

for the establishment of a laser interferometer gravitational wave observatory in South Africa. Certain criteria such as accessibility, geological stability, suitable topography, access to high speed internet, electricity and feasibility were considered. The Great-Karoo was targeted, as it has large flat areas, which is a prerequisite for such a site, due to the length (4 km) of the interferometer arms.

The objective of the site survey is to garner local and international support for the construction of a gravity wave observatory in South Africa and to facilitate inclusion of South Africa in the LIGO Scientific Collaboration. This will improve the observation of gravitational waves from cosmic sources, and will include the South African scientific and engineering community in the field of gravitational wave astronomy.

A description of a suitable site is given, this site could be included in future modelling scenarios of the LIGO Scientific Collaboration. As external forces on the test masses of the interferometers limit their sensitivity, a proposal is made for the establishment of a long-term monitoring site equipped with suitable instrumentation to provide a time-series of data which can be used as site validation data.

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