

MVCORS – the First Permanent GNSS Network of Maldives

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SUMMARY

The advent of the modern space-geodetic techniques, namely GNSS (Global Navigation Satellite Systems), has revolutionised how surveying and precise positioning are carried out nowadays in a much more efficient way. In addition, CORS (Continuously Operating Satellite Systems) are also nowadays the norm all over the world to define and maintain national reference frames. In fact, the national reference frame plays a vital role in the economic development of any country by delimiting and monitoring changes in property, environment, and biodiversity. It is a pivotal infrastructure by providing the foundation for all geo-referencing activities. Consequently, it is essential to ensure its consistency and accuracy over the entire territory of any given country.

The Republic of Maldives is formed by 22 geographical atolls comprising of about 1200 islands (with about 200 islands inhabited) spread over an area of 90 000km². Most of the islands are not inter-visible which has prevented the creation of a classical national datum. The only classical datum for Maldives was Gan 1970 based on the International ellipsoid but it was lacking a proper materialisation and national coverage.

Foresight Surveyors has initiated in 2021 the installation of MVCORS, a network of CORS stations, currently with 8 stations, distributed all over Maldives, with the aim to optimize their surveying activities. But MVCORS has also the potential to define and materialize the first national reference frame of Maldives.

This work details the current status of the implementation of MVCORS, with a particular focus on the physical installations in a difficult environment and the remote management of the stations. The computation of the coordinates of the stations with respect to the latest realisation of ITRS (International Terrestrial Reference System) with the goal of have a single and consistent reference

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frame all over the territory of Maldives is also discussed. Finally, the link with a future national vertical datum, which is a paramount issue in Maldives, is also examined in detail.

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