REFLECTING POINT OF BISTATIC ALTIMETRY – GEOMETRIC MODEL WITH THREE QUADRICS

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Good knowledge of Earth shape and its dimensions and field of gravity is a base for some kind of human activity. It is important for oceanography, climatology and similar sciences. Satellite altimetry is the way to obtain this information. And with bistatic altimetry we can obtain more information at the same moment.

This paper describes the ground of bistatic altimetry and the way to compute a reflecting point as an intersection of three quadrics. The first two quadrics are rotational ellipsoids and the third one is rotational cone. One global and two local coordinate systems are used in the solution. Transformation matrices are used for the change of coordinates between these coordinate systems.

In the first step of computing the reflecting point, we have to find the points of intersection between rotational cone and ellipsoid of reflecting points. In the second step, these points of intersection are tested if they belong to the reference ellipsoid WGS 84.

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