

ABSTRACT: The Invariant Measure for the Satellite Ground Station View Period Problem \*

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Planners for the Deep Space Network at JF'L require long-term forecasts of ground station view periods. The standard approach requires orbit integration up to 20 years. The geometry of the satellite groundtrack and station mask suggests the use of ergodic theory. An invariant measure was found which enabled the application of the Ergodic Theorem to this problem. The total view period for a circular orbit is given by a definite integral over the sphere. This paper presents the derivation of the invariant measure.

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