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VGOS Source Selection Criteria

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Source structure has long been recognized as a significant risk factor for the broadband method. The issue of greatest concern is that structure related phases and delays will lead to cycle slips during broadband phase connection. These errors will be difficult to handle since they are both subtle to detect and almost certainly impossible to correct after the fact.

As the advent of VGOS operations draws near, criteria will be needed to generate lists of candidate VGOS sources that are at the same time strong enough to be detected and simple enough not to cause broadband phase connection errors.

The purpose of this study is to propose useful VGOS source selection criteria and to understand their relation to broadband frequency sequences, source lists, and geodetic/astrometric performance. In order to increase the number of available sources, an attempt will be made to find frequency sequences that operate reliably below the typical VGOS flux cut-off of 250 mJ. Candidate source lists will be generated using the Bordeaux VLBI Image Data Base (BVID) as input and geodetic/astrometric performance will be predicted using the VieVS Monte Carlo simulator.

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