

Canadian VLBI Technology Development Center Report

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Abstract The Canadian VLBI Technology Development Center (TDC) is involved in a number of activities contributing to the realization of the VLBI Global Observing System (VGOS).

1 Activities during 2015 and 2016

The Canadian TDC is sponsored by the Canadian Geodetic Survey (CGS) of Natural Resources Canada (NRCan). It is focused on encouraging the realization of VGOS. This is done primarily by Bill Petrachenko (who is past IVS Technology Coordinator, is past chairman of the VGOS Technical Committee (VTC), and is currently a member of VPEG, the VGOS Project Executive Group) and Anthony Searle of NRCan. In collaboration with others, activities focused on the following areas:

- Development of novel scheduling strategies that involve fixed source switching intervals. These schedules perform very well for larger networks (greater than about 12 stations) and are tolerant of stations leaving and joining the network as circumstances change.
- Development of criteria for selecting radio sources for broadband observing.
- Investigation of the use of DBE-based pulse cal detectors as an added real time tool for evaluating station performance.

- Initiation of a dialog to investigate the possibility of installing low power VGOS signal sources on Galileo II satellites.
- Investigation of the feasibility and benefits of the use of a VGOS frequency mode that involves continuous frequency coverage across the full VGOS 2–14 GHz input range, i.e., without regard to the restriction of the use of four 1-GHz bands.

The Canadian TDC maintains close ties with the Dominion Radio Astrophysical Observatory (DRAO) of the National Research Council of Canada (NRC). DRAO is involved in a number of activities that have potential applications to the IVS.

- Digital signal processing including development of correlators, beam formers, and systems for pulsar processing.
- Fabrication of a light, stiff, and cost effective 15-m off-axis Gregorian top-fed composite antenna.
- Development of focal plane arrays.

2 Future Plans

The Canadian TDC plans to continue to actively encourage the realization of VGOS.

Canadian Geodetic Survey, Natural Resources Canada

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IVS 2015+2016 Biennial Report