

GROUND BASED INTERFEROMETRIC RADAR INITIAL LOOK AT LONGVIEW, BLUE SPRINGS, TUTTLE CREEK, AND MILFORD DAMS

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ABSTRACT

Measuring millimeter and smaller deformation has been demonstrated in the literature using RADAR. To address in part the limitations in current commercial satellite-based SAR datasets, a University of Missouri (MU) team worked with GAMMA Remote Sensing to develop a specialized (dual-frequency, polarimetric, and interferometric) ground-based real-aperture RADAR (GBIR) instrument.

This thesis details a number of my efforts on experimental and processing activities at the start of the MU GBIR imaging project. A number of initial-processed GBIR image products are presented from four dams: Longview, Blue Springs, Tuttle Creek, and Milford. Excellent imaging performance of the MU GBIR has been observed for various target types such as riprap, concrete, soil, rock, metal, and vegetation. Strong coherence of the test scene has been observed in the initial interferograms.