GBIR CROSSTALK REDUCTION OF FULLY POLARIMETRIC DATA FROM BLUE SPRINGS DAM

Satya Cherukumilli

Dr.Justin Legarsky, Thesis Supervisor

ABSTRACT

An investigation into reducing crosstalk from Blue Springs Dam GBIR fully polarimetric data was conducted. Advanced polarimetric processing and techniques often rely on precise phase measurement. One benefit of crosstalk reduction is improvement in phase measurement. A well-known model of crosstalk behavior was explored in relation to the MU GBIR. To achieve a successful estimation of the method parameters, data culling was performed to weed out low cross-polarization and high-correlation values from the processing flow. After data culling, average covariance matrices were formed for use in crosstalk parameter estimation. Analysis of crosstalk parameters demonstrated the values had small fluctuation over the unmasked locations. Using global estimates, calibration correction matrices were formed and applied to the data. The resulting crosstalk calibrated imagery showed a reduction in crosstalk of about 9 dB. Thus, the Blue Springs Dam polarimetric data were successful crosstalk calibrated.