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Detecting anomalous changes in remote sensing imagery from different sensors.

Combining multiple satellite remote sensing sources can provide a far richer, more frequent view of the earth than that of any single source; the challenge is in distilling this large volume of heterogeneous sensor imagery into meaningful characterizations of the imaged areas. The traditional approach to change detection involves difference-based techniques, but these do not naturally extend to image pairs captured by sensors with different designs and phenomenologies. To leverage imagery in this multi-sensor context, algorithms are being developed to effectively combine different kinds of sensor imagery that can identify subtle but important changes among the intrinsic data variation, e.g., multispectral to synthetic aperture radar. Here, we implement a joint-distribution framework for anomalous change detection that can effectively “normalize” for these changes in modality. Results are shown using satellite imagery from different sensor platforms over time. (Received September 17, 2019)