Canadian SAR remote sensing for the Terrestrial Wetland Global Change Research Network (TWGCRN)

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Abstract The Canada Centre for Remote Sensing (CCRS) has more than 30 years of experience investigating the use of SAR remote sensing for many applications related to terrestrial water resources. Recently, CCRS scientists began contributing to the Terrestrial Wetland Global Change Research Network (TWGCRN), a bi-national research network dedicated to assessing impacts of global change on interconnected wetland-upland landscapes across a large portion of North America. CCRS scientists are applying SAR remote sensing to characterize wetland components for a subset of TWGCRN landscapes in two ways: changes in surface water extent have been mapped using a multi-temporal set of RADARSAT-2 SAR data collected during April–September 2010 and changes in flooded vegetation were mapped with polarimetric RADARSAT-2 data from the same dataset to determine areas where double-bounce represented the primary scattering mechanism. The combined information from these SAR derivatives provided TWGCRN scientists with an improved monitoring capability for wetlands in these dynamic landscapes. These data are being used in conjunction with other remote sensing and field data to study interactions between landscape and animal (birds and amphibians) responses to climate/global change.

Key words Terrestrial Wetland Global Change Research Network (TWGCRN); SAR; climate change; wetland