Satellite sensors can collect electromagnetic (EM) spectrum data that is invisible to the human eye. People only see optical (red, green, and blue) light which is only a tiny fraction of the entire electromagnetic (EM) spectrum that consists of x-rays, ultraviolet light, infrared light, thermal infrared, microwaves and radio waves. WetlandWATCH utilizes satellite sensors that can collect EM spectrum data that’s invisible to the human eye with wavelengths 500,000 times longer than optical wavelengths allowing it to see past surface wetland vegetation and reach the substrate hydrology. Our remote sensing scientists use Synthetic Aperture RADAR (SAR) L-Band imagery to identify wetland hydrology extent and saturation levels otherwise not possible.

WetlandWATCH can monitor construction effects throughout vast wetland complexes providing a reliable, continuous, and complete picture of wetland hydrology ideal for change detection analyses.
HOW DOES IT WORK?

All SAR imagery is highly sensitive to the dielectric constant of water and is strongly reflected. L-Band imagery provides wetland hydrological information in a continuous snapshot that cannot be collected in any other way (Figure 1).

VALUE

L-Band SAR image analysis provides quantifiable baseline conditions of wetland hydrology through the entire wetland complex prior to construction. L-Band data can monitor the effects of construction on a wetland’s hydrology over time reliably and consistently through change detection analysis (Figure 3).

Figure 1. Optical wavelengths are short and cannot penetrate past surface wetland vegetation and cannot detect the underlying water table (left). L-Band wavelengths are much longer and can penetrate through surface wetland vegetation reaching the wetland’s water table (right).