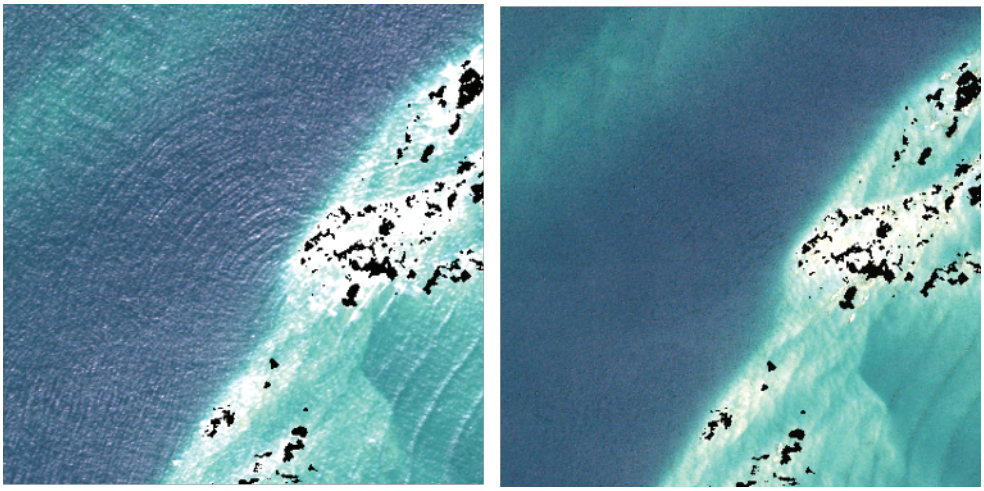
Sun Glint Correction

The US Naval Research Laboratory (NRL) has developed and tested a patent-pending algorithm and software to correct remotely sensed imagery for specular reflection, also known as sun glint. The NRL technique offers three key benefits: The first is the ability to accurately correct for glint in shallow water locations where the bottom contributes to reflection in a manner that most traditional correction methods cannot accurately handle. The second is the ability to compensate for specular reflection before or after atmospheric correction—techniques using sensor radiance spectra to estimate atmospheric variable parameters may result in incorrect or inconsistent removal of the atmospheric component of the signal in glinted areas. The final benefit, specific to imagery from the WorldView-2 and WorldView-3 sensors, is the ability to effectively correct images while taking into consideration the 0.2 second time gap between data collection for the two 4-band multi-spectral arrays.



The image above right demonstrates the efficacy of the NRL's innovative algorithm to effectively de-glint imagery in a variety of applications, including shallow water. The original, uncorrected image is above left.

The NRL de-glinting algorithm employs a moving window approach to calculate the glint contribution for each pixel in the image. This technique is ideal for high resolution and broad-range radiometric in imagery because it processes each 4-band array individually and utilizes the data in the local area to provide the baseline NIR reflectance rather than using a single whole image relationship.

Benefits

- Effective in Shallow Water: Preserves non-zero NIR reflectance in shallow water areas in order to accurately correct for glint under circumstances where traditional methods fail
- Flexible: Can be applied before or after atmospheric correction in order to maintain de-glinting effectiveness, especially for high spatial resolution, radiometrically broad collections
- Simple: De-glinting is automated following masking for land masses, clouds, and cloud shadows

Status and Opportunity

- A pending US patent filing and software code are available for license
- Potential for collaboration with Naval Research Laboratory researchers
- Additional information available at techlinkcenter.org/deglint

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