

## Putting Geocoder to Work

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For many years the focus has been on collecting and processing the first bottom return of multibeam sonars. However, the acoustic backscatter acquired by multibeam sonars, as well as sidescan sonars, also carries important information about the seafloor and its physical properties. This information provides valuable data to aid in seafloor classification and important auxiliary information for a bathymetric survey. One necessary step towards this characterization is the creation of more consistent and reliable mosaics of acoustic backscatter. For that, it is necessary to carry out certain corrections on the backscatter to create this final backscatter map. With the integration of the tools found in Geocoder such as radiometric corrections, geometric corrections and mosaic feathering, CARIS SIPS is able to create high-quality, accurate mosaics. Seafloor classification, Reson Snippet support and improved Simrad support have also been leveraged from Geocoder.

The strengths of Geocoder are certainly in its array of detailed backscatter corrections and its accurately modeled seafloor characterization algorithms. The challenge then is to blend these capabilities into a coherent workflow, design a clear yet powerful user interface, and provide the scalability, stability and speed needed by organizations of any size.

Realizing that different users have different needs, CARIS HIPS and SIPS employs a variety of options for incorporating these new capabilities into existing workflows. In order to allow users to absorb the changes at their own pace, the traditional workflows are still available. They are now augmented, however, by a sleek, highly automated, full survey approach. This is made possible by combining the re-designed SIPS Template Wizard and the all-new Mosaic Editor with the processing power of Geocoder.

SIPS Template Wizard allows users to take raw imagery data all the way to fully corrected, mosaicked lines with a few mouse clicks. Then using Mosaic Editor the user is able to create a complete mosaic from the corrected, mosaicked lines. Mosaic Editor provides intuitive functionality for blending and adjusting, adding or removing lines in order to produce the composite mosaic. Mosaic Editor also has a sediment analysis tool that allows users to interactively analyze and assess seafloor characteristics.

Embedding Geocoder deeply into the CARIS HIPS and SIPS code base has produced a confluence with numerous advantages. For instance, the core technology for the mosaics is based on HIPS BASE Surfaces, giving users a fast, reliable and familiar format for editing and storing their work. Also, system resource management can be directly controlled and improved upon, providing greater stability and scalability not available in Geocoder alone. Deep integration also allows Geocoder processing to be made faster, more efficient, and more flexible.

By carefully integrating Geocoder with proven HIPS and SIPS technology, CARIS is meeting the challenges involved in bringing Geocoder to the commercial environment. Combining years of proven software, workflows, and data formats with innovative ideas and purpose-built interfaces, HIPS and SIPS maximizes the processing and analysis potential of Geocoder.