



FUGRO ROCIS

Remote Ocean Current Imaging System (ROCIS) is a high-resolution airborne imaging system, capable of measuring near surface currents over large areas.

OPERATIONAL PLANNING SUPPORT

Oil and gas operators rely on accurate and timely observations of ocean currents to support the planning and execution of offshore exploration, development and production activities, including:

- Seismic operations
- Deepwater drilling operations
- Support for current-sensitive construction activities
- Oil spill response and mitigation
- Search and rescue

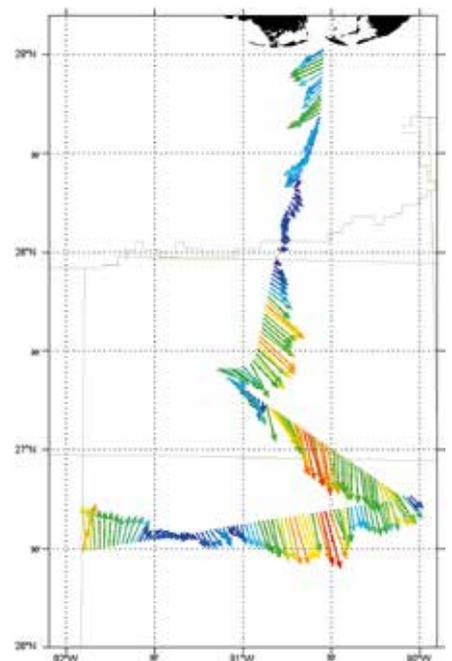
Wide area synoptic surface current data can also be valuable in characterising offshore conditions, and initialising and validating forecast models.

ROCIS

Existing current measurement techniques cannot obtain high resolution synoptic measurements of near surface currents over a broad area. Developed by Fugro and Areté Associates, ROCIS bridges the gap between satellite observations and vessel based measurements, using high resolution imaging to measure surface currents.

Using high-resolution airborne photography, ROCIS retrieves surface current data from the Doppler shift of successive surface wave images.

The data can be used in conjunction with satellite, numerical models and in situ measurements to provide a comprehensive understanding of offshore current features.



ROCIS image of surface currents derived over the Gulf of Mexico.

BENEFITS

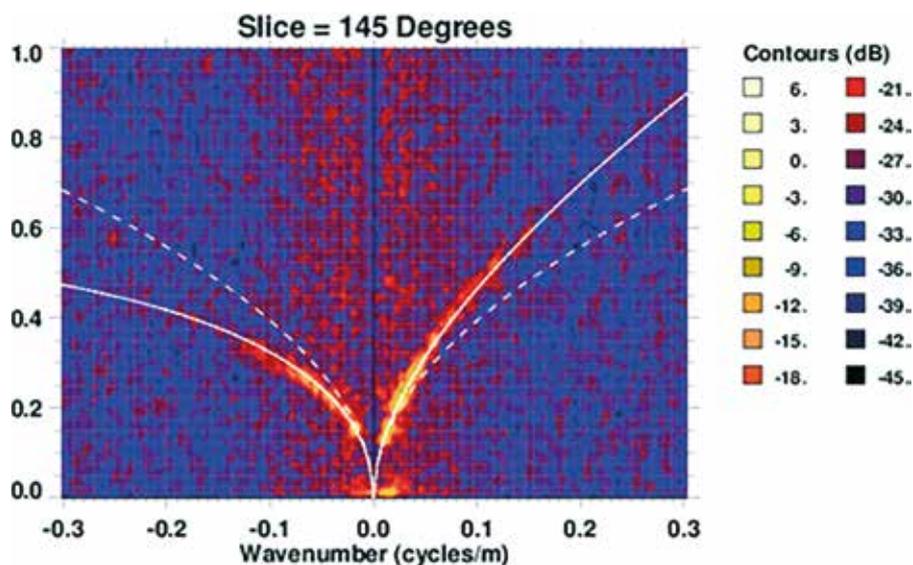
- Surface current data is captured in near real time
- Broad area coverage of large ocean circulation features such as eddies
- High resolution data for specific locations and smaller scale features
- Supports reduction of operational downtime
- Enhances operational efficiency and safety
- Cost-effective compared with vessel operations and can be provided on a joint client basis

FEATURES

- Measures synoptic surface currents over a larger area (1000 km track per day), more than 5 times that possible with a surface vessel
- Measures currents in the top 5 m of the water column
- Measurement resolution of 250 m x 250 m
- Accuracy better than 3 cm/s
- Compact and portable for quick mobilisation from small airfields in remote locations
- Acquires data where vessel availability is low and infrastructure is sparse
- Combines Fugro's worldwide airborne geospatial survey and oceanographic operational expertise, HSEQ standards and responsiveness

SYSTEM CONFIGURATION

ROCIS combines forward and backward facing, high-resolution digital cameras, precision Applanix INS DGPS positioning data, and a state-of-the-art image processing algorithm to collect 2-Hz, geo-referenced images of the sea's surface. These are subsequently analysed in the frequency domain to calculate the currents from the Doppler shifted wave spectrum.

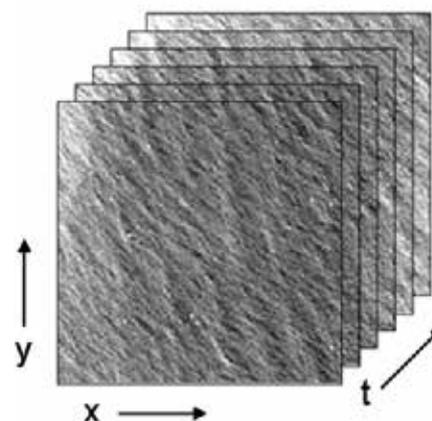
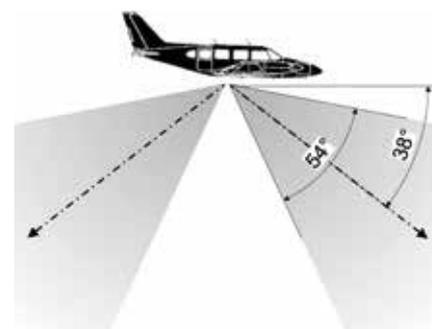


Power spectral density (PSD) field from an image stack.

RELATED SERVICES

Fugro can also provide the following services for complete operational support:

- Air deployed drifting buoys and Expendable Current Profilers (XCPs)
- Multispectral camera systems for oil seep/spill detection and monitoring
- Ocean forecast and advisory services
- Weather forecast services
- Rig- and platform-based systems for meteorological and oceanographic monitoring



Example image stack of surface waves used in the analysis to derive currents.



ROCIS is provided in association with Arété Associates.