

MARINE SCENARIO CHANGE DETECTION

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USER EXPECTATIONS

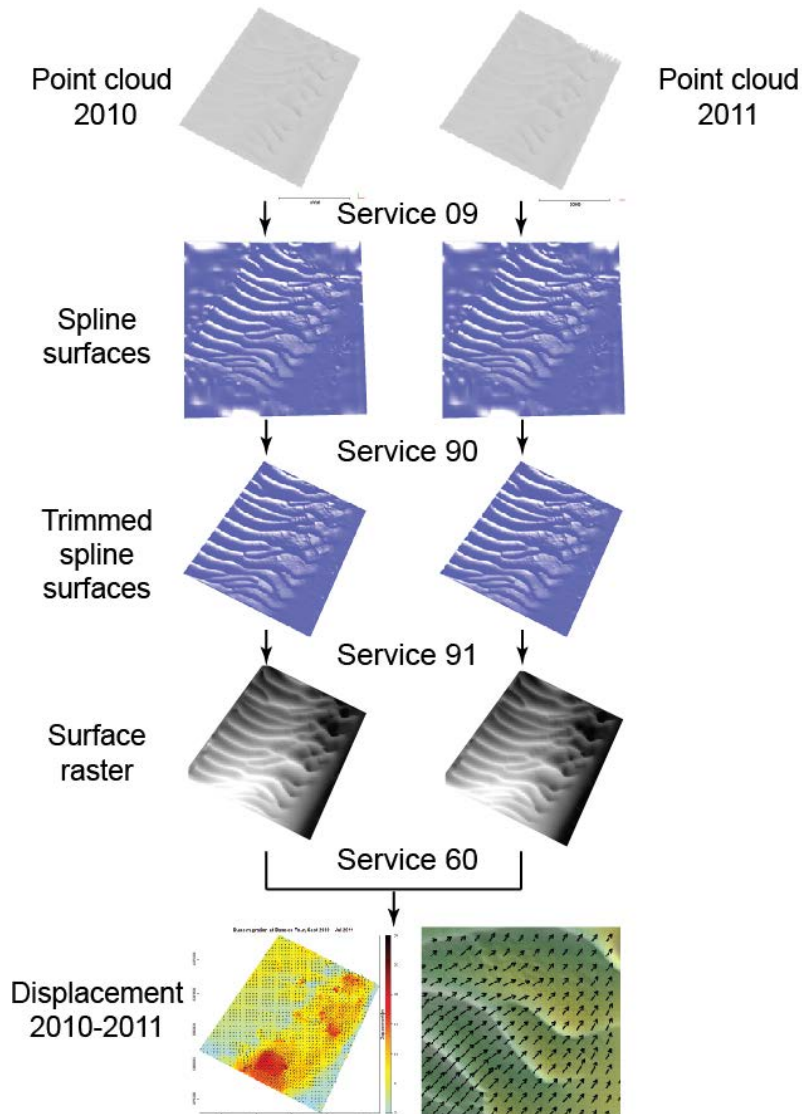
- Submarine dunes and sand banks are among the most dynamic geomorphologic formations in coastal waters.
- Recent advances in multi-beam echo sounding (MBES) enable increasingly frequent observations of the sea floor morphology.
- There is no commercial tool to easily compare crest line of the dunes at different time steps.

IQMULUS USER STORIES: 50, 51, 52, 75, 73

Detection of surface changes from bathymetric point clouds and existing elevation models will address user stories including coastal monitoring, geomorphology, physical oceanography, etc.

SERVICE 60: 2D DISPLACEMENT MEASUREMENT

2D Displacement measurement using DSM/DTM/DEM and optical images using sub-pixel image cross-correlation with spatial regularization



- Service 09 (SINTEF): Interpolate spline surface from point cloud
- Service 90 (SINTEF): Trim spline surface
- Service 91 (SINTEF): Spline surface to GeoTIFF raster
- Service 60 (UBO): 2D displacement measurements

BIG DATA STRATEGY

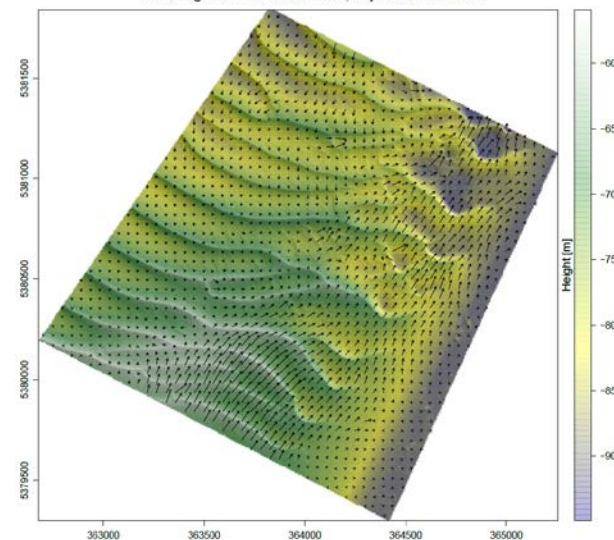
- Porting and multi-threading
- Data partitioning (service #102 can be implemented to MS4 for a tiling and merging data strategy.)

MS4 – QUALITY EVALUTATION

MS4 quality has been strongly assessed considering :

- Evaluation of the results (robustness against false positive, decorrelation, absolute accuracy of the derived measurements, etc.)
- Scalability aspects
- Degree of human intervention

Dune migration at Banc de Four, Sept 2010 – Jul 2011



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