TechnoEconomica

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Hydrographic Surveys & Tidal Analysis

Clients: Atkins – ARAMCO – EDF RC Jubail – CHC – Air Products - Canal & Rivers Trust

Good Survey Data for Good Modelling

The standard of modelling required to support engineering works should be high. Whilst this demands excellent modelling systems these cannot deliver unless properly supported with data of appropriate quantity and type. Calibration of a tidal hydrodynamic model demands at least one month of tidal elevation and current data at several locations.

Water quality models are complex and may require many months of data to be measured in order to understand the processes occurring in a particular water body.

If a lake or dock is to be used as a heat sink then the vertical and spatial temperature distribution should be measured over at least one year.
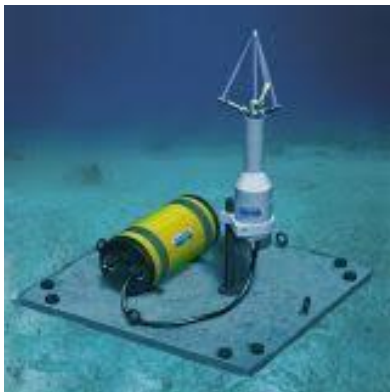

ADCP Measuring Currents

Survey Specification

Surveys can be expensive. Although bathymetry costs are lower than in the past, deploying an ADCP is costly and usually located in a harsh environment. The loss of a data set from one of these instruments is not uncommon. Project funds devoted to the survey must be sufficient to ensure a good data return, but must be wisely spent. Deploying a single ADCP may appear cost effective but risks complete loss of data should the instrument fail.
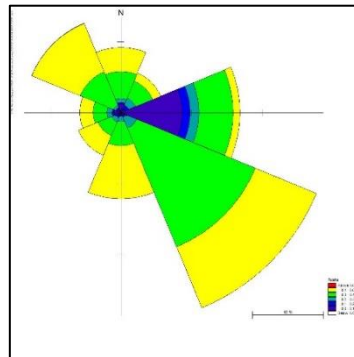
Current Rose

Experience

TechnoEconomica has experience specifying surveys in a wide range of environments and for various levels of project detail. Examples include:

- Hydrographic and thermal surveys for a large infrastructure project in the Gulf of Arabia

- Tidal and current survey in the Red Sea for a large jetty associated with a large land-based production facility

- Bathymetric, tidal, current, thermal and salinity survey in Bahrain Bay for an RO plant outfall and intake location

- Surveys of surface and vertical temperature and salinity distribution in urban docks to support long term modelling of temperature evolution and discharge consent applications.

Data Analysis

TechnoEconomica will analyse the data and present it in a form for model calibration and verification. We can carry out the complete range of tidal and current analysis and predictions using our own modern efficient tidal analysis and prediction software.

The software can automatically select an optimal set of components.

Our tidal software accommodates both the IOS and Simplified methods for prediction and analysis of tidal
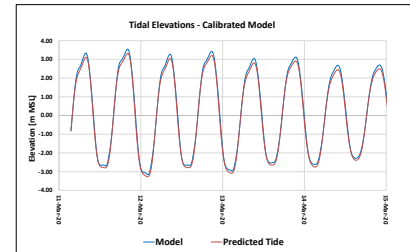
Tidal Elevation Model & Predicted

elevation and current vector data. The software includes numerous other features such as:

- Current vector time series prediction based on tidal diamonds

- Tide tables using either IOS or SAM data

- Analysis of complete model results data sets to generate co-tidal and co-phase plots.

- Operational windows based on tidal elevation and/or current speed

Services Provided

- Specification of hydrographic survey

- Specification of thermal and water quality survey

- Analysis of meteorological data

- Analysis of hydrographic, thermal and water quality data

- Tidal & current vector prediction & analysis

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