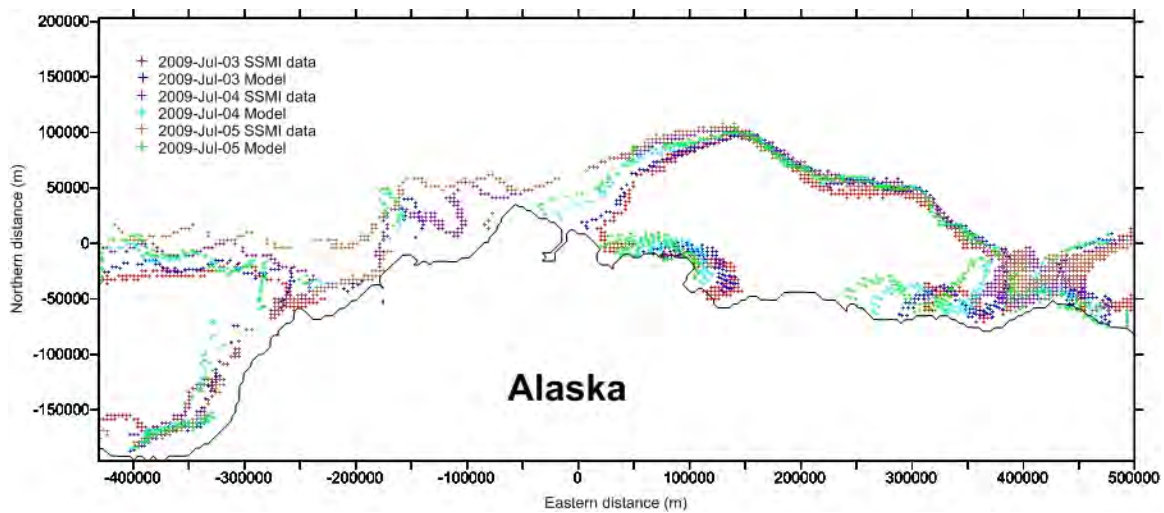


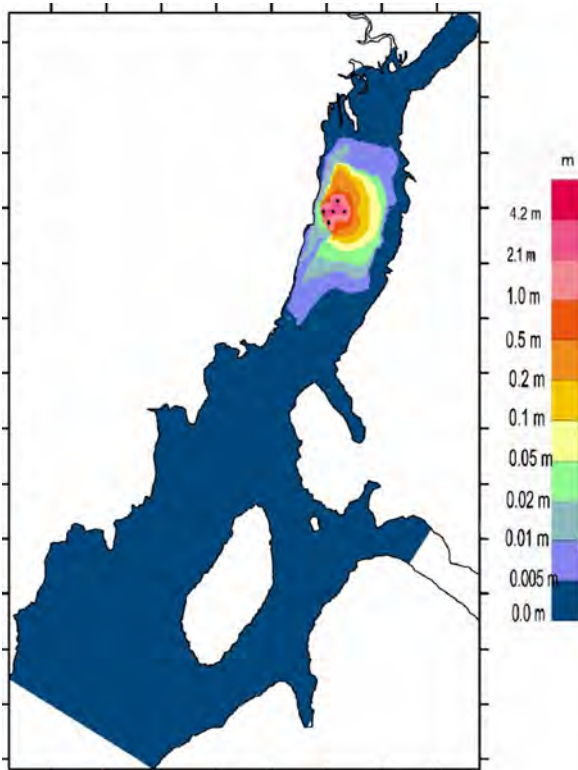
*Wave Model Study of a new Marina Development in Victoria Harbour, BC, Canada.*

Advanced numerical modeling is a powerful method of visualizing the dynamic behavior of physical systems. With only a sparse data set, predictions can be made of currents, water quality and sediment transport. Modeling also allows for “what-if” studies to determine the impact of coastal engineering structures and other changes in the environment.

ASL has its own model (ASL-COCIRM-SED) and the widely used Delft-3D for integrated modeling application of current, sediment and water-quality studies. ASL uses commercially and freely available numerical models, such as the SWAN wave model and the FVCOM circulation model for other studies.



*Ice edge tracking using the ASL-COCIRM-SED model.*



*Numerical modeling of dredging activities associated with a port development*

Our model is founded solidly on the science of fluid dynamics for circulation including such natural forces as:

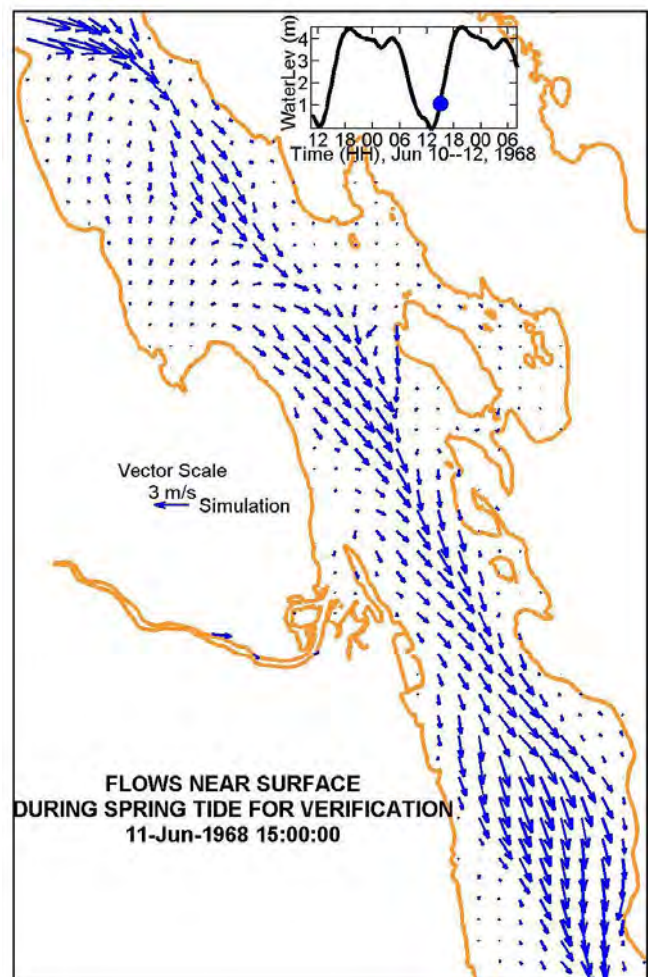
- Wind stress
- Tide and water level
- Density stratification and buoyancy
- Bottom and shoreline friction
- Coriolis force

Numerical model runs are calibrated and validated with oceanographic and meteorological field data. Often, this data is collected by ASL's own personnel.

ASL has developed world leading expertise in the modeling of sediment releases from dredging and the disposal of these sediments in deeper waters.

These studies have taken place the following environments:

- Coastal Seas
- Ports and Harbours
- Estuaries and Rivers



*ASL-COCIRM numerical model output of near-surface flow in a channel.*