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A new course on
TIDES – THEIR NATURE AND IMPACTS

Tides have relevance to many branches of oceanography and are important particularly to the coastal regions of the Bering Sea and North Pacific. Understanding of tidal dynamics has important bearing in assessment of the transport of sediments and pollutants, interactions with storm surges in areas of frequent flooding and transport of fish larvae and zooplankton, to mention just a few. While tides are related to large sea level changes and strong currents in the coastal regions, they also impact on many phenomena such as, vertical mixing rates of waters and, hence, on biology, sedimentation and thermal balance.

These subjects have broader implications beyond the context of tides. Our geological history is partially a function of the changes in the sun-earth-moon system, caused by dissipation of the tidal energy. To mention one number, every year the Moon is moving away from Earth about 4cm. On the shorter time-scale, the ice cores and the marine sediment cores display 2000-yr climatic cycles caused by tides. The well known 18.6-yr lunar cycle has been linked to the cyclic changes in marine biological productivity. Even monthly period, accordingly to recent analysis of pressure change in the atmosphere, is responsible for 10-15% of the observed change. Tides are a potential natural source of energy for the generation of electricity. Such application has raised many questions about an environmental impact of tidal power development. The course is focused primarily to the needs of oceanographers and ocean engineers.

