

# Greg Crawford, PhD

Dean, Faculty of Science at University of Ontario Institute of Technology

Oshawa, ON, CA

World-renowned oceanographer leads collaborative and inspired science faculty at UOIT

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## **Description**

International current and tidal expert Greg Crawford, PhD, has dedicated his career to coastal oceanography and limnology (the study of inland waters) in Canada and the United States. His research has led to the development of remote sensing techniques for measuring currents, waves, turbulence, gas bubbles and sand dollars (hard-shelled marine animals).

Dr. Crawford's research has had far-reaching environmental and economic implications. Perhaps most notably, he helped develop the world's first operational wave hazard forecasting model for a bar entrance, in partnership with the U.S. National Weather Service (NWS). The Humboldt Bay Bar Entrance Forecast model produces wave hazard predictions for every hour, up to five days in advance along the California coast, and is used to help mariners predict safe passage through dangerous waters. This work has served as a benchmark for the deployment of similar models in other coastal U.S. locations. He also helped to establish a real-time current mapping for the U.S. west coast using a network of high-frequency radar systems. Working with key stakeholders, he co-authored a California state white paper to assess environmental issues associated with proposed wave energy generation systems in the coastal region.

Dr. Crawford earned his Bachelor of Science in Physics (Honours Co-operative Education Program) in 1983 and his Master of Science in Physics in 1986, both from the University of Victoria. He obtained his Doctorate in Oceanography in 1993 from the University of British Columbia. During his undergraduate studies, he co-authored a paper published in the prestigious journal *Nature* and secured an opportunity to do his Masters research in the new field of acoustic remote sensing of the ocean alongside Dr. David Farmer, a leading researcher at the Institute of Ocean Sciences in Sidney, B.C.

With a view to entering higher education management, he obtained a Master of Public Administration from California State University Dominguez Hills in 2006. In 2009, he took on a new role as Dean of the Faculty of Science and Technology at Vancouver Island University in Nanaimo, B.C., managing 10 departments and three major research centres. Recently he moved east to Ontario, leaping at the opportunity to help shape UOIT's Faculty of Science. Appointed Dean in July 2014, Dr. Crawford's "leadership through service"™ philosophy resonates well with faculty and students.

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## **Industry Expertise**

Boating, Education/Learning, Environmental Services, Fishery and Aquaculture, Laboratory Services, Maritime, Professional Training and Coaching, Program Development, Research, Training and Development

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## **Topics**

Observing and Modelling Waves (Including Tsunamis) and Currents, Development and Application of Environmental Remote Sensing Techniques, Mixing and Transport in Lakes, Estuaries, and the Ocean, Physical Controls On Biogeochemical Processes in Water, Higher Education Management

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## **Affiliations**

American Geophysical Union, North Pacific Marine Science Organization, Canadian Council of Deans of Science, Council of Ontario Deans of Arts and Science

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## **Past Talks**

**The Current Signal of the April 1, 2014 Chile Tsunami as Recorded in Crescent City, California**  
26th General Assembly of the International Union of Geodesy and Geophysics

**Measuring Possible Tsunami Currents from the April 1, 2014 Mw 8.2 Chile Earthquake in Crescent City, California**

Fall 2014 American Geophysical Union Meeting

**Resonant Ocean Current Responses Driven by Coastal Winds Near the Critical Latitude**

61st Annual Eastern Pacific Ocean Conference (EPOC)

**Managing Organizational Change**

British Columbia Deans of Arts and Sciences Programs

**Observed and Modeled Tsunami Current Velocities on California's North Coast**

26th International Tsunami Symposium

**Summative Assessment and Program Prioritization: Experiences at Two Universities**

2013 Western Canadian Deans of Arts and Sciences Conference

**Observed and Modeled Tsunami Current Velocities in Humboldt Bay and Crescent City Harbor, Northern California**

Fall 2012 American Geophysical Union Meeting

**Sustained Observations of Mesoscale and Submesoscale Surface Circulation off the U.S. West Coast**

OCEANS 2012 Conference

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## **Education**

**California State University**

MPA Public Administration

**University of British Columbia**

PhD Oceanography

**University of Victoria**

MSc Physics

## **Accomplishments**

### **Dean, Faculty of Science, UOIT**

Dr. Crawford brings more than 20 years of progressive experience in higher education and is dedicated to promoting and supporting the best in innovative research, teaching and learning in the faculty.

### **Tsunami Research Consultant**

Dr. Crawford continues to partner with colleagues at Humboldt State University, conducting research on currents and waves in local harbours in order to better predict the potential impact of tsunamis and mitigate the loss of life and property.

### **Partnerships**

Dr. Crawford has helped negotiate a variety of local and international partnerships with universities, including: a unique three-way partnership for the beneficial use of biosolids on low-nutrient, forested land; a funded initiative to support engagement with the aquaculture industry and other stakeholders; • post-secondary program agreements; and an environmental stewardship program, delivered in community, for aboriginal students.

### **Ocean Observing Systems**

Dr. Crawford helped develop and manage several regional ocean observing systems projects on the U.S. west coast, including: Coastal Ocean Currents Monitoring Program (COCMP; high-frequency radar systems to map ocean currents); California Integrated Coastal Ocean Research and Education (CICORE; nearshore, real-time coastal ocean monitoring); Central and Northern California Ocean Observing System (CENCOOS; an integrated regional observing system); Pacific Coastal Ocean Observing System (PACOOS).

### **Co-author, Ecosystem-Based Management Plan for Humboldt Bay**

Dr. Crawford was a co-principal investigator on a grant to undertake a strategic planning exercise. He helped organize and run stakeholder meetings, synthesize findings, and develop a draft ecosystem-based management plan for Humboldt Bay, California (Schlosser et al. (2009); available at: <https://escholarship.org/uc/item/6x78j1dd>).

### **Humboldt Bay Bar Entrance Forecast Model**

The Humboldt Bay Bar Entrance Forecast Model produces wave hazard predictions for every hour, up to five days in advance, for the entrance to Humboldt Bay, California (<http://www.wrh.noaa.gov/eka/swan/>). Known to have one of the most dangerous bay entrances along the west coast of North America, Humboldt Bay provides the key link for the transportation of fuel to rural northern California. The model helps mariners to plan safe routes and timing in and out of the bay.

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