

SYNERGISTIC MONITORING OF OCEAN WINDS, WAVES AND STORM SURGES FROM MULTI-SENSORS

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List of Principal Investigators (PIs)

Topic Nr.	PIs	Title
32249_1	Dr. Alexis Mouche, Prof. Biao Zhang	Algorithm for advanced wind and wave products from multi-sensors
32249_2	Prof. Bertrand Chapron, Dr. He Wang	Global climate on wind and wave from long term multi-sensor data
32249_3	Dr. Ole Andersen, Prof. Jingsong Yang	Extreme ocean event monitoring from multi-sensors

EXECUTIVE SUMMARY

Observing, understanding and predicting ocean swell has been a focus on study in both China and Europe for climate, meteorology, environment and economy. To monitor at global scale ocean swell will improve the wind and wave forecast for marine meteorology (including extreme events), the ocean dynamics modeling and prediction, our knowledge of climate variability, and fundamental understandings on air-sea surface processes. And to monitor and map extreme events during typhoons (hurricanes) or storm surges we have to develop the use of multiple satellite wind, wave and sea level data for forecast. The Dragon projects have been providing an excellent opportunity for Chinese and European ocean research communities to utilize the spaceborne satellite remote sensing data from China, ESA and Third Party Missions (TPM) to actively monitoring ocean swell, wind and other relevant parameters. It is the purpose of this project to continue cutting edge research in synergistic exploitation ocean swell study at global scale and extreme events in coastal region and gain insight of the physical nature of these phenomena, which will lay a solid foundation as we move to operational oceanography. The purpose of the project includes: (1) investigate algorithms for advanced ocean products from multiple microwave satellite sensors together describing wind and wave at the storm event scale ; (2) develop high wind retrieval algorithm from cross-polarization SAR; (3) synergy with existing satellite missions monitoring ocean waves; (4) investigation on global swell climate based on long term series space-borne data. (5) assimilation studies of wind, waves and sea level in the context of hurricanes forecasts; (6) the influence of swell on the studies of coastal extremes; and (7) consistent analysis on winds, waves and storm surges in the context of hurricanes. The Chinese and European parts are both funded by National Programme on Global Change and Air-Sea Interaction and other relevant programme to run this project.

ABSTRACT 32249_1: “Algorithm for advanced wind and wave products from multi-sensors”	
European Principal Investigator Dr. Alexis Mouche Ifremer, FRANCE	Chinese Principal Investigator Prof. Biao Zhang Nanjing University of Information Science & Technology, CHINA
<p>Observing, understanding and predicting ocean swell has been a focus on study in both China and Europe for climate, meteorology, environment and economy. To monitor at global scale ocean swell will improve the wind and wave forecast for marine meteorology (including extreme events), the ocean dynamics modelling and prediction, our knowledge of climate variability, and fundamental understandings on air-sea surface processes. The Dragon projects have been providing an excellent opportunity for Chinese and European ocean research communities to utilize the spaceborne satellite remote sensing data from China, ESA and Third Party Missions (TPM) to actively monitoring ocean swell, wind and other relevant parameters. It is the purpose of this project to continue cutting edge research in synergistic exploitation ocean swell study at global scale with and gain insight of the physical nature of these phenomena, which will lay a solid foundation as we move to operational oceanography. The purpose of the project includes: (1) Investigate algorithms for advanced ocean products from multiple microwave satellite sensors together describing wind and wave at the “storm event scale”; (2) Develop high wind retrieval algorithm from cross-polarization SAR. The Chinese and European parts are both funded by National Programme on Global Change and Air-Sea Interaction and other relevant programme to run this project.</p>	
ABSTRACT 32249_2: “Global climate on wind and wave from long term multi-sensor data”	
European Principal Investigator Prof. Bertrand Chapron Ifremer, FRANCE	Chinese Principal Investigator Dr. He Wang National Ocean Technology Center, CHINA
<p>Observing, understanding and predicting ocean swell has been a focus on study in both China and Europe for climate, meteorology, environment and economy. To monitor at global scale ocean swell will improve the wind and wave forecast for marine meteorology (including extreme events), the ocean dynamics modeling and prediction, our knowledge of climate variability, and fundamental understandings on air-sea surface processes. The Dragon projects have been providing an excellent opportunity for Chinese and European ocean research communities to utilize the space-borne satellite remote sensing data from China, ESA and Third Party Missions (TPM) to actively monitoring ocean swell, wind and other relevant parameters. It is the purpose of this project to continue cutting edge research in synergistic exploitation ocean swell study at global scale and gain insight of the physical nature of these phenomena, which will lay a solid foundation as we move to operational oceanography. The purpose of the project includes: (1) Synergy with existing satellite missions monitoring ocean waves; (2) Investigation on global swell climate based on long term series space-borne data. The Chinese and European parts are both funded by National Programme on Global Change and Air-Sea Interaction and other relevant programme to run this project.</p>	
ABSTRACT 32249_3: “Extreme ocean event monitoring from multi-sensors”	
European Principal Investigator Dr. Ole Andersen Technical University of Denmark, DENMARK	Chinese Principal Investigator Prof. Jingsong Yang Second Institute of Oceanography, CHINA
<p>Observing, understanding and predicting extreme events at particularly the coast is currently a focus on study in both China and Europe for climate, meteorology, environment and economy. To monitor and map extreme events during typhoons (hurricanes) or storm surges we have to develop the use of multiple satellite wind, wave and sea level data for forecast. The Dragon projects have been providing an excellent opportunity for Chinese and European ocean research communities to utilize the spaceborne satellite remote sensing data from China, ESA and Third Party Missions (TPM) to continue cutting edge research in synergistic studies of extreme events in coastal region and gain insight of the physical nature of these phenomena, which will lay a solid foundation as we move to operational oceanography. The purpose of the project includes: (1) assimilation studies of wind, waves and sea level in the context of hurricanes forecasts; (2) the influence of swell on the studies of coastal extremes; and (3) consistent analysis on wind and waves in the context of hurricanes. The Chinese and European parts are both funded by National Programme on Global Change and Air-Sea Interaction and other relevant programme to run this project.</p>	