



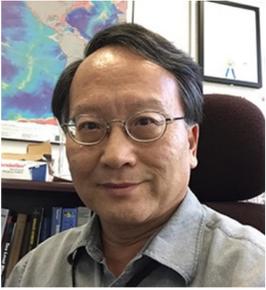
“We are excited and anxious to put our SWOT goggles on and finally see the Earth’s water in high-def. To answer most critical climate questions of our time – the disruption of water cycle in a new climate, as a complete process, both in terms of water and energy supply from our oceans, and water demand and water inequality on land. All water on planet Earth: enter SWOT.”

Nadya Vinogradova Shiffer
SWOT NASA Program Scientist



“How not be excited by the SWOT mission which will greatly improve our knowledge of ocean, coasts, climate, and freshwater stocks on a global scale, themes with strong societal and environmental stakes. Really motivated being on board this challenging and promising program.”

Annick Sylvestre-Baron
SWOT CNES Program Manager



“The most exciting opportunities from SWOT are to explore two key aspects of climate change: ocean heat and freshwater availability. The oceans store heat and CO2, which curbs the effects of climate change, including impacts to the water cycle and freshwater availability. SWOT will achieve this through revolutionary technology that will measure water heights at high resolution.”

Lee-Lueng Fu
SWOT Science Team 2020-2024, Project Scientist



“SWOT’s finer resolution sea surface height images will provide the first 2D surface observations of the eddies’ stretching and straining, allowing us to derive vertical exchanges of heat, carbon, and nutrients below the surface, revealing how the ocean adjusts to surface warming. Our science team is strong, they have made amazing progress in preparing for what we should see with SWOT, and for me, this is one of the most exciting aims of SWOT.”

Rosemary Morrow
SWOT Science Team 2020-2024, Lead



“SWOT will usher in a new golden age for the science of rivers and lakes. Right now, we can measure how the amount of water in lakes and reservoirs changes for a few thousand lakes worldwide. With SWOT, we’ll be able to observe millions. As climate change and direct human activities influence our rivers, SWOT will help us to understand changing risks from flooding, opportunities for sustainable water use, and the fundamental natures of these important natural systems.”

Tamlin Pavelsky
SWOT Science Team 2022-2024, Lead



“Deltas and estuaries have complex shapes and hydrodynamics, which are often not well monitored or modeled. SWOT will drastically improve our current knowledge of them.”

Jean-Francois Cretaux
SWOT Science Team 2020-2024, Lead



“SWOT will give us unprecedented two-dimensional measurements of sea surface height. These measurements will test our understanding of smaller-scale processes and will drive breakthroughs in ocean modeling and forecasting. Our planned research will start by probing the dynamics of the California Current System and will extend across the planet.”

Sarah Gille
SWOT Science Team 2020-2024



“The surface layer of the ocean can be a few meters to a few hundred meters thick, and its properties determine how much heat and carbon can be absorbed by the ocean. Ocean eddies at 10-100 km scales play a very important role in setting the properties of this surface layer, and SWOT will give us a whole new perspective on these eddies and their role in the climate system. I am really excited about SWOT because it will open our eyes to a lot of oceanic variability that we have not been able to observe before.”

Tom Farrar (WHOI)
SWOT Science Team 2020-2024, Lead



“SWOT’s high resolution will let us observe shallow-water tides all along the world’s coastlines, where the tides are often largest and most complex. Similarly, SWOT will observe the near-polar tides through narrow breaks in the ice cover. Perhaps the most exciting new observations will be of short-wavelength (~100 km) internal tides in the open ocean. These waves appear to play a significant role in vertical mixing of the ocean, and SWOT will lend new insight into the mixing problem.”

Richard Ray
SWOT Science Team 2020-2024



“SWOT should make a sea-change in our understanding of freshwater resources. In particular, human alteration of the global freshwater cycle is among the least understood aspects of our global hydrosphere. SWOT will directly measure, with useful frequency, the changing volume of water behind dams and reservoirs. This global first will accompany SWOT’s downstream estimates of river discharge to form perhaps the world’s most complete accounting of human alteration of river flow.”

Colin Gleason
SWOT Science Team 2020-2024



“Through acquisition of high-resolution, spatially continuous measurements of inland water surface elevations, SWOT stands poised to revolutionize terrestrial hydrology in much the same way that Seasat transformed physical oceanography in 1978.”

Larry Smith
SWOT Science Team 2020-2024



“SWOT’s radar measurements will provide a new high resolution view of interactions between the ocean and atmosphere. The short-scale surface wind-wave variability at 1-5 km, that SWOT is capable of measuring, have never been mapped in two-dimensions with such continuous, wide-swath, and global coverage. These new data will aid existing weather prediction models in terms of how they resolve and predict heat and energy exchange between the atmosphere and oceans in both fair and foul weather situations.”

Doug Vandemark
SWOT Science Team 2020-2024



“The deep ocean remains the last uncharted frontier in the inner solar system. The deep ocean floor has more than 90% of the active volcanoes; hydrothermal circulation of seawater through the crust of the seafloor replenishes the nutrients needed for life on Earth. The new swath-mapping capabilities of SWOT will improve our mapping of the marine geoid by perhaps a factor of 5 to provide important information about deep ocean topography and provide improved resolution of the seafloor tectonic fabric.”

David Sandwell
SWOT Science Team 2020-2024



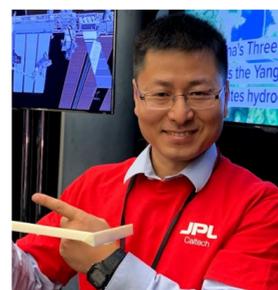
“SWOT will resolve river discharge globally for rivers greater than 100 m in width (and perhaps smaller), most of which are unobserved or data are unshared globally. SWOT will also measure storage fluctuations in global reservoirs and lakes. SWOT discharge and freshwater storage can be used along with other datasets to better understand how precipitation is partitioned (runoff, evapotranspiration, storage), thus providing critical information for assessing changing water resources and freshwater availability.”

Mike Durand
SWOT Science Team 2020-2024



“SWOT observations will enable scientists to evaluate and adjust vertical heat and carbon transport due to small oceanic scales in numerical models. These model adjustments should lead to vastly increased predictive skill for weather forecasting and climate change studies.”

Dimitris Menemenlis
SWOT Science Team 2020-2024



“NASA’s PO.DAAC, the data distributor for SWOT in the US, has adopted a new data service completely based on cloud infrastructure to accommodate 20TB/day data ingestion. The cloud-based platform will also encourage and foster open science. I am so looking forward to the moment of seeing the first number sent from the SWOT satellite and the subsequent new discoveries in both oceanography and hydrology.”

Jinbo Wang
SWOT Science Team 2020-2024



“Water is our most important natural resource and in these times of uncertainty we need to know whether populations will have enough fresh water or too much of it. The SWOT mission addresses these management issues by telling us where surface water flows and where it is stored, everywhere on Earth.”

Marc Simard
SWOT Science Team 2020-2024



“I am excited to map oceanic eddies, internal waves, and their interactions. Internal waves are waves with a detectable signal at the sea surface and a greater signal at depth. SWOT will enable mapping of these motions in greater detail than ever before.”

Brian Arbic
SWOT Science Team 2020-2024



“SWOT will revolutionize the observation of the mesoscale and submesoscale variability in the ocean. I am eager to analyze how these new and unique observations will improve our global ocean forecasting capabilities.”

Pierre-Yves Le Traon
Scientific Director Mercator Ocean International