

Wind and Waves Forecast

Sailors soon will be able to chart their courses around gigantic, dangerous waves, predictable up to 48 hours in advance—By Barbara J. Culliton

► OCEAN WINDS and waves throughout the world may soon be forecast almost two days in advance, thanks to a super-weather-system with a satellite sending an endless stream of data to a huge electronic computer.

Predictions covering the entire Northern Hemisphere and part of the Southern Hemisphere may be possible within a year, Dr. Willard J. Pierson Jr., of New York University School of Engineering and Science, reported in Washington, D.C.

Mathematical techniques for a computer-based system created by Dr. Pierson and a flat-map projection of the world's oceans developed by scientists at Lockheed-California Company, Burbank, are ready to go.

What they need is to be fed with accurate initial information.

Trying to make forecasts from present data is like playing the stock market with yesterday's tapes, Dr. Pierson believes.

Predictions are now made on the basis of often sparse and inaccurate data sent in from ships at sea. A captain often determines wind speed by judging its feel as it blows in his face, and wave heights are estimated by long-time sailors standing on deck.

A possible remedy is a satellite that could be launched into a near-polar orbit and pick-up data around the globe.

Making two complete ocean sur-

veys each day, it could feed back accurate data on the North Pacific for example, in about ten hours, Dr. Pierson told SCIENCE SERVICE.

With data from the satellite, accurate wind and wave predictions could be computed to provide advance warning of hazardous sea conditions, increase the safety of rescue operations on the ocean, give information on wave conditions for the benefit of ship builders and assist the U.S. Navy in operations such as troop deployment and aircraft carrier landings.

Boat and dock owners at seaside resorts could use this data as well.

Weather satellites and computers already record the behavior of the upper levels of the atmosphere for the Environmental Science Services Administration (ESSA), but few computations are made for surface layers, the first 600 feet of air above the ocean.

Even when surface weather and sea conditions are reported, there are large expanses of the ocean in which no ships are sailing.

For these areas, no data are presently available.

The orbiting satellite would gather data equivalent to that reported from 2,800 ships spaced fairly uniformly over the world's oceans.

Reporting the observation-forecasting system with Dr. Pierson were Dr. Leo J. Tick, also of NYU, and Dr. Ledolph Baer of Lockheed-California.

CHEMISTRY

New Coating Repels Water

► CHANCE DISCOVERY of a long-life water repellent coating while searching for an aircraft structure ice inhibitor has led to an important new technical product.

Dr. Helen Su and Frank W. Thomas of Lockheed-Georgia's organic research laboratory near Marietta, Ga., are co-inventors.

Called Lockheed Windshield Water Repellent, it forms an invisible layer of film which provides continual water repellency for several months when applied to a glass surface.

Dr. Su first applied the coating to her own car in 1965.

She made a second application recently. During a three-week test period she found that nothing would remove the film once it was applied.

Windshield cleaning at service stations merely removed dust leaving the protective water repellent film intact.

Car windshields are only one of several test applications conducted during the past year. The material has been used for coating naval optical devices and a large defense contractor is considering it for optical aircraft systems. A worldwide study is now underway utilizing the coating on F-104 Starfighter windshields under various climatic conditions.

Other applications include coating of electronic parts to prevent moisture-induced malfunction, waterproofing of furniture to protect original finishes and numerous space vehicle applications.

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