



**DEPARTMENT OF THE AIR FORCE**  
AIR FORCE LIFE CYCLE MANAGEMENT CENTER  
HANSCOM AIR FORCE BASE, MASSACHUSETTS

11 March 2024

MEMORANDUM FOR CARE WEATHER TECHNOLOGIES, INC.  
ATTN: M. Patrick Walton, Chief Executive Officer, Co-Founder.

FROM: AFLCMC/HBAW

SUBJECT: Letter of Support for Care Weather's Development of Commercial Scatterometer Satellites and Evaluation of the Scatterometer Data.

1. This letter indicates interest from the AFLCMC's Weather Systems Branch for Care Weather's proposed satellite constellation for scatterometry data.
2. The Care Weather solution will provide a critically needed capability to the warfighter, as identified in the Joint Requirements Oversight Council (JROC) space-based environmental monitoring (SBEM) sensing requirements.
3. Care Weather's novel satellite architecture will be the first to commercially collect high-quality ocean wind data. Care Weather will provide a unique, commercial, resilient, and shareable capability to the US government and its allies. Care Weather's scatterometry data has the potential to enhance and improve the U.S. Air Force's weather mission.
4. Air Force Weather has a historical need for this data-type and intends to support continued collection. In the event this data becomes available, HBAW would be interested in purchasing data to satisfy mission requirements and improve mission success.
5. It is expressly understood that this letter is non-binding and does not constitute a promise of funding. This letter creates no liability or obligation of any nature between the U.S. Air Force or the Weather Systems Branch and Care Weather Technologies, Inc.

COY FISCHER  
Major, U.S. Air Force  
Program Manager, Commercial Weather  
Data Pilot



**UNITED STATES DEPARTMENT OF COMMERCE**  
**National Oceanic and Atmospheric Administration**  
National Environmental Satellite, Data, and Information Service  
Center for Satellite Applications and Research  
5830 University Research Court  
College Park, Maryland 20740

December 18, 2024

**To:** Care Weather Technologies  
Attn: Patrick Walton, CEO  
144 W 400 N  
Provo, UT 84601

**From:** Paul Chang, PhD  
Lead, NOAA/NESDIS/STAR/Ocean Surface Winds Science team

**Subject:** Letter of Support for Care Weather SBIR proposal

I understand Care Weather is developing satellite systems to measure hourly wind speed and direction over the surface of the ocean using small scatterometers. Ocean surface wind vector (OSVW) is a high priority satellite observation requirement for the National Oceanic and Atmospheric Administration (NOAA). My team, the Ocean Winds Science Team, in the Center for Satellite Applications and Research in NOAA/NESDIS has been supporting the utilization of satellite OSVW for operational weather monitoring and forecasting since the ERS-1 scatterometer. We are interested in evaluating the impact of the data from Care Weather's proposed small scatterometer system in NOAA's operational weather mission.

Ocean surface vector wind data collected from scatterometers have a long history of driving improvements in NOAA's global weather forecasts and warnings of extreme events such as gale-force winds, storm-force winds, hurricanes, extra-tropical cyclones, and bomb cyclones. Since the loss of the NASA QuikSCAT mission in 2009, NOAA has had to leverage international partners to obtain scatterometer OSVW data to support weather forecasting and warning.

We are particularly excited about the potential for Care Weather's Veery satellite to reduce the cost of scatterometry in the long term. These reduced costs bring the potential for a number of long-awaited improvements, including consistent year-to-year operation for climate records, higher wind speed range, higher resolutions and accuracies, and higher refresh rates.

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Paul Chang, PhD  
Lead, NOAA/NESDIS/STAR/Ocean Surface Winds Science team





**Date:** February 21, 2020

Care Weather Technologies  
Attn: Patrick Walton, CEO  
144 W 400 N  
Provo, UT 84601

Patrick,

I understand Care Weather is developing systems to measure wind speed and direction, among other parameters. My organization, the Rocky Mountain Research Station of the U.S. Forest Service, is interested in this data as it becomes available from the context of possibly supporting wildland fire management. The Missoula Fire Sciences Laboratory, uses wind measurements from a variety of sources, along with national wind forecasts, to initialize surface wind simulations using the WindNinja modeling tool, our high-resolution wind simulation, which helps firefighters track and predict the wind and its impact on the forest fires they fight. Coastal wind datasets that provide wind measurements at times and places where measurements are currently unavailable allow us to select more accurate initial conditions for our simulations. The better wind data we have, the better we can inform firefighters of current wind conditions and the more accurately we can predict future conditions.

Regarding wind data attributes, to be useful for supporting fire management in coastal areas wind speed needs to be accurate to within a few meters per second. Wind direction needs to be accurate to within 20-30 degrees per second. The more dynamic range to the measurements, the better. The finer the spatial resolution, the better, but even coarser spatial resolutions will be valuable to us if they improve on existing datasets. For example, 25-50 km coastal wind measurements will be valuable if either the sampling rate is more frequent or the measurements cover gaps in currently available measurement data. We prefer measured wind data to be delivered with low latency, but older data is often helpful for researching past fire events.

Sincerely,

/Bret Butler/

Bret Butler, Ph.D.

Research Mechanical Engineer  
US Forest Service, Rocky Mountain Research Station  
Missoula Fire Sciences Laboratory  
Fire Fuels and Smoke Program  
Missoula, MT 59802





## Department of Atmospheric Sciences

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August 20, 2020

Care Weather Technologies  
Attn: Patrick Walton, CEO  
144 W 400 N  
Provo, UT 84601

### **RE: Statement of Interest in Ocean Vector Wind Data**

Dear Patrick Walton,

I understand Care Weather is developing systems to measure hourly wind speed and direction over the surface of the ocean, among other weather parameters. As this data becomes available, I am excited to use it in my weather forecast and data assimilation research at the University of Utah.

I'm currently a member of the NASA CYGNSS science team. The wind measurements provided by CYGNSS have demonstrated that ocean surface winds are valuable for studying tropical cyclones and improving the weather forecast. Thus, the continuous availability of the ocean surface winds, especially the prospect of hourly ocean vector winds at the improved time and spatial resolution, can dramatically improve our ability to understand cyclones and increase the skill of the weather forecast. I am excited about the opportunity and am also interested in simulating the impact of this data on the skill of the weather forecast.

To use ocean vector wind measurements, we would like to have the following performance: speed and direction as well as the estimation of their accuracy (variances, standard deviation), dynamic range, spatial resolution, coverage, latency within several hours. I am interested in using data with improvements over existing sources of ocean vector wind measurements.

Sincerely,

Zhaoxia Pu, Ph.D.  
Professor, Atmospheric Sciences



Patrick Walton  
CEO  
Care Weather

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14 June 2021

**Letter of support for ocean scatterometry**

Dear Patrick,

I would like to thank you for your interesting presentation last month on the planned Care Weather scatterometer mission.

Met Office uses ocean scatterometry data from the Metop satellites in our NWP systems. Scatterometry data give us useful information on ocean winds and have a significant positive impact on our forecast accuracy. More frequent ocean wind data of a comparable quality would enhance our ability to capture rapidly developing severe weather, which would benefit maritime users

I wish you the best of luck with the endeavour and look forward to seeing the results.

Yours sincerely,

A handwritten signature in black ink, appearing to read "J. Eyre".

Dr. John Eyre  
Science Fellow