

#### **Exhibit for Form 442 Question 4: Government Project Description**

NOAA has awarded Contract NA14OAR4320125 as part of their Advanced Rainfall / Flood Monitoring System initiative to provide localized warnings aimed at saving lives and property.

NOAA/ESRL Physical Sciences Division together with CSU/CIRA (NOAA Cooperative Institute for Research in the Atmosphere) are working in understanding the changing rain patterns in California and assisting local entities in understanding, preparing for, and managing rapidly changing water derived effects ranging from draught to flooding and compounded by wildfires and the potential for debris flows.

With the onset of the yearly monsoon phenomenon there is potential for very large rainfall amounts from weather systems coming from the Pacific Ocean, capable of devastating effects on infrastructure and people. This problem can be exacerbated in regions with challenging topography suffering from poor conventional weather radar coverage.

As part of this effort, low-power short-range X-band weather radar is being investigated as a tool to experimentally monitor precipitation in localized areas with challenging terrain, providing targeted high-resolution, high-update data over the region of interest. These data will be used as part of a larger framework development aimed at quantifying and forecasting rainfall in an effort to support both real-time, on-the-ground decisions by partner entities (water management, weather forecast office, emergency management) and different aspects of research on forecasting and monitoring rainfall.

This is a critical project in light of the recent events on the ground, with fires and the potential for debris flow and resulting flooding.

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