Hi I’m Will Wilson, Anthony Donzella, Allison Daniel, Josh Hammes, Grant Bloomer.

**All:** And we are Peru Disasters Team

**Allison:** A recent report by the World Bank and Global Facility for Disaster Reduction and Recovery ranked Peru within the top 20 countries in the world for high economic risks from multiple hazards. Almost a quarter of the Peruvian population lives in flood-prone regions, exposing many people to the extensive economic and social damages brought on by these events. In the Andean Mountains, rivers moving toward the coast are susceptible to flood during the rainy season from November to April. Like many other developing countries, flood mitigation and response plans are inadequate. Therefore, monitoring systems and technological tools for modeling and assessment are used to address subnational government and sectoral knowledge needs.

**Grant:** Water for People began work in Peru in 2008 selecting three rural areas. The Peru team is dedicated to working with local governments to map water resources and create water resource management plans for watersheds.

**Francisco:** Hi, I am Francisco Soto, I am director of Water for People. We are in the 4th phase with the work for NASA. The first three phases had to do with evapotranspiration and water budget in this 4th phase we are trying to mitigate the risk of flood in the Ochape sub-basin. This is an opportunity as we see the “El Nino” phenomenon in Peru and there are already cases of flood. So in the circumstances we are living here this will allow as take some beneficial preventive steps.

**Josh:** The Cascas and Chepate Rivers flow through Andean highland valleys before their confluence with the larger Chicama River creating the Ochape sub-basin, an area of 217 square kilometers which outlines our study area. Rich sediments and fertile soil support an economy based on agriculture and livestock rearing, and wineries flourish outside and around the main town, Cascas, (population 5,000). Because of the proximity of these endeavors to the river systems, flooding during the rainy season disrupts this economy. Better understanding of the rainfall-runoff pattern through modeling with earth observations should allow local policy makers to make informed decisions with some predictive dimension.

**Anthony:** This project employed data sets from three NASA Earth Observation systems. TRMM - The Tropical Rainfall Measuring Mission, a mission between NASA and the Japan Aerospace Exploration Agency is used to study rainfall for weather and climate research. TERRA – The MODIS sensor, is used to collect Potential Evaporation Data. SRTM – The Shuttle Radar Topography Mission provides a Digital Elevation Model (DEM) for the study area.

The data collected from these Earth Observations generated these 5 layers for the hydrological model;

- 3 hourly Rainfall

- Potential Evapotranspiration

- Digital Elevation Model

- Flow Direction, and Flow Accumulation were both gathered using ArcGIS.

**William:** These layers were used as imports into the distributed hydrological model CREST v2.0 a collaboration between NASA SERVIR and the University of Oklahoma’s HYDROS Lab, simulates the spatial and temporal variation of water fluxes using cell to cell simulation. This helps exhibit the variability of the atmosphere and surface that govern the rainfall-runoff process and allows for seamless incorporation of remote sensing observations. When run successfully, the CREST model generates time series and distributed outputs on streamflow, surface runoff, and subsurface flow. Our project is geared toward utilizing the model in a remote area that lacks in-situ data on which to calibrate and seeing whether the results match with what our partners see on the ground. If so then the model can be transferred and scaled to further basins in the region. As of this time, the results are inconclusive yet we are pushing ahead and creating a manual for our partners while some issues are worked out