

## **Climate Change, Social Vulnerability to Disasters and Adaptation: Modelling Social Dissatisfaction, Displacement, and Migration**

*Jennifer M. Santos-Hernández, Budhendra Bhaduri, Ben Preston, Xiaohui Cui, Richard Medina, Jack Schryver*

Oak Ridge National Laboratory, Geographic Information Sciences and Technology Group (ORNL-GIST)

The potential impacts of climate change as a result of global warming are increasingly capturing the attention of researchers from all scientific disciplines. The large number of people living along the coast and in low lying areas presents a potential major source of vulnerability to climate change. While these areas account for only 2% of the world terrain, approximately 10% of the world population and 13% of the urban population resides in them. Two thirds of all cities with over 5 million residents are at risk to storm surge and coastal flooding as a result of climate change (McGranahan, Balk, and Anderson, 2007). In an increasingly globalized world, coastal areas continue to be the ones where most economic activity takes place.

Conversely, the large numbers of people living in rural areas, whose livelihoods are directly dependent on natural resources, also present another potential major source of vulnerability to climate change. Social scientists contend that in light of the “unequivocal” changes in climate patterns people are likely to be forced to migrate (Hunter, 2008). As a consequence, climate change may give rise to new and previously unimaginable forms of economic and social organization. This presentation presents a preliminary model that brings together social theory, spatial analysis techniques, and large scale computing capabilities to provide important insights aimed at generating a better understanding of climate adaptation and social vulnerability to disasters. The purpose of this research is to generate knowledge of the potential impacts of climate change on migration, population distribution, and ultimately on the social fabrics of sending and receiving countries.