



### SCO-Young Scientist Profile

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#### **Details of research work carried out in S&T (limit to 200 words)**

My research interests lie at the area of water resources managements, utilization efficiency of water resources, surface water processes, hydrological modeling, climate change, land use change, and remote sensing. Current researches include estimating the utilization efficiency of water resources in Mekong river basin, evaluating the streamflow sensitivities to climate change and interannual climatic variability, predicting the streamflow under future climate change scenarios for big river basins in Arctic region, and understanding the roles of climate, vegetation, soil, topography, and anthropogenic activities in water balance across time-scales. My previous works were about the in-situ monitoring the impacts of vegetation treatment on evapotranspiration, and the integration of hydrologic and water balance models to hydrodynamic model, and remote sensing data to understand hydrologic responses to climatic change and variability and anthropogenic activities (e.g., irrigation, land use change). Modeling is pursued to balance the simplicity and representation of dominated processes. Based on these works, I have published 18 papers and most of them have published in the top-rated journals such as *Water Resources Research*, *Journal of Hydrology*, *Geophysical Research Letters*, *Hydrology and Earth System Sciences* and so on.

**Associated SCO-YSC Theme:** *Environmental Protection and Natural Resource Management*

#### **Statement of Innovation (Brief information on new innovative ideas including startup / entrepreneurs- limit to 150 words)**

**Reconstructing annual groundwater storage changes by integrating the remote sensing data and simple water balance model**

Approximately 37% of irrigated land area in the world depends on groundwater, and irrigation accounts for 56% of total groundwater withdrawal globally. The worldwide 'explosion' of groundwater exploitation has been instrumental for ensuring food supplies and agricultural production, but led to severe groundwater depletion in many regions across the globe.

**Shanghai Cooperation Organization- 1<sup>st</sup> Young Scientists Conclave (SCO-YSC 2020)**  
**A virtual event organised in India at CSIR-IICT, Hyderabad**  
**Theme: Shaping SCO-STI Partnership: Young Scientists Perspectives**

Groundwater depletion threatens the sustainability of food production in the long term and deteriorates groundwater-dependent ecosystems. It is very important to monitor the annual groundwater storage changes for agricultural production and water resources managements. However, it's very cost to monitor the groundwater storage changes by installing the observation wells, especially for the large-scale crop land region. To address it, we plan to develop an innovative method by integrate the remote sensing data with a parsimonious water balance model.

**Major awards/ Achievements** (*Upto 3 awards*)

Marty Wanielista Endowed Fellowship, University of Central Florida, United States, 2015, 2016

Gerald R. Langston Endowed Scholarship, University of Central Florida, United States, 2015

Best Master Thesis Award (%1), Beijing Forestry University, P. R. China, 2011

**Possible collaboration with SCO countries** (*limit to 100 words*)

Look forward to collaborating with young scientists in SCO countries to conduct innovative researches and develop new technologies to increase water-use efficiency and ensure sustainable withdrawals and supply of freshwater to address water scarcity under the context of climate change. Look forward to attending our session 5 meeting.

**Key words** (*relevant to research work conducted as well as proposed innovation, 5-6 words*)

water resources managements, hydrological modeling, climate change, land use change, remote sensing, surface water processes