

**PUBLIC WATER SUPPLY UTILITIES- CLIMATE IMPACT WORKING GROUP
UTILITY RESEARCH AGENDA DRAFT**

May-11 (updated May 2012)

CLIMATE AREAS	UTILITY NEEDS	AVAILABLE TOOLS	RESEARCH NEEDS	CURRENT RESEARCH PROJECTS	ADDITIONAL RESEARCH NEEDS
Temperature Impacts					
	Daily and monthly max temperature and Seasonal Temp. Change	NOAA forecasts; SECC - AgroClimate.org	Urban ET estimates associated with temp impacts; EDA on historical temperature vs demand across different sectors		
	Irrigation Demand Changes			1. Drought index/irrigation water balance forecasts using CPC 3-month outlooks (Martinez) 2. Downscaled/bias corrected reference Evapotranspiration across the SE USA (Martinez)	
	1. How seasonal temp. forecasts impact irrigation demands				
	2. Proportion of water demand for irrigation	WASD submeter billing records			
	Cooling Demand changes				
	1. How could cooling water demand change with temp?	Downscaled IPCC projections and other sensitivity experiments conducted in COAPS ; Winter-Summer variation for current metered flow	Bias correct the projections	COAPS/USGS-La Florida & COAPS/ORAU project (Vasu)	
Rainfall Impacts					
	Regional rainfall predictions				
	1. Long term rainfall forecasts - 10, 20, 50 years, downscale global climate models to Florida regions	Global Climate models - AR4, NARCAST	Downscale models to Florida, calibrate w/ FL data		
	2. Long term changes in rainfall patterns in Florida	Change in ENSO pre and post 1960	Demand vs rainfall; r/p between rainfall and temperature for demand estimation		
	2. Short term forecasts for winter-spring dry season, available Jan 1 for 3/1-6/15	IASCLIP FORECAST FORUM - IFF, winter forecasts better		Downscaled GFS and CFS forecasts (Martinez)	Better predictions in spring
	3. Length of wet or dry season and its variability	ENSO effects	hydroperiod durations; development of indicators		
Storms/Hurricanes					
	Predict Nos./ Likelihood of Florida hurricane impacts	Good models for total nos. of hurricanes			Predictions for nos. hurricanes to hit Florida
	Model inundation and damage	GIS inundation model	Climate Compact doing Action Plans		
	Storm surge impacts (regional or local)	Storm surge models			
	Impact of Storm/inundation on salt water intrusion	coupled surface/Groundwater models	coupled surge/surface/groundwater models to better predict surge impact on SWI		Hydrodynamic model for salt water intrusion
	Forecast hurricane tracks with 10-15 day lead time				

Sea Level Rise					
	Monitor SLR data vs. models to develop statewide consensus	SE Climate Commission developing white paper			
	How do temp. and SLR forecasts correlate?				
	Florida SLR predictions	SE Climate Commission developing white paper			
	Salt water intrusion boundary	USGS has models and IMS websites for South Florida WQ and WL data	increased vertical delineation across south Florida; hydrostratigraphic correlation to vertical delineations and movement		
	Building Coastal Construction Line	Available for coastal counties			Needs to be updated
	Drainage/Stormwater impacts	Climate Compact developing Action Plan			
Carbon Emissions					
	Utility methods to reduce carbon footprint	WERF research - Utility reduction methods			
	Nitrous oxide impacts from ww plants on climate				How to measure nitrous oxide emissions
Social Science					
			Media & Public Perception on Policy		
			Cognitive Processes in response to Climate Change		
			Deleoping Competencies & Accessing Information		
			Risk management and communication		