IMPACTS OF CLIMATE CHANGE ON U.S./GLOBAL WATER RESOURCES
Co-Facilitators: Timothy D. Steele (TDS), Ph.D. and James R. Kunkel (JRK), Ph.D., P.E.
Course Syllabus

Tuesday, January 21, 2020 -- Session 1: (TDS)
WHAT IS CLIMATE CHANGE? [warming?/chaos/etc. terminology]
Climate-change FAQs (extracted from DHI, 2016)
How has climate changed over the years (tree-rings and other indicators)
Changes in air temperature, precipitation and evaporation
Hydrologic-cycle components which are impacted by climate change

Tuesday, January 28, 2020 -- Session 2: (JRK)
THE WATER CYCLE AND CLIMATE CHANGE
El Niño (ENSO), La Niña and Madden-Julian Oscillation (MJO) – JRK
Climate change impacts on evaporation and precipitation
Clouds affect the climate and climate affects the clouds
Worldwide, sea level is rising because of climate change
Melting ice also causes more warming

Tuesday, February 4, 2020 -- Session 3: (TDS)
GREENLAND AND ICELAND CLIMATE-CHANGE – Case Studies

Tuesday, February 11, 2020 -- Session 4 (JRK)
Part A -- LONG-TERM GLOBAL IMPACTS OF CLIMATE CHANGE ON WATER RESOURCES
North America (U.S. & Canada)
Central America, South America & Caribbean (JRK/TDS)
Case Study: Climate Modeling in Northern Perú
Australia
Polar Regions Antarctica; see above; brief; perhaps add Siberia in Russia)

Tuesday, February 18, 2020 -- Session 5 (TDS)
Part B -- LONG-TERM GLOBAL IMPACTS OF CLIMATE CHANGE ON WATER RESOURCES
Mexico, Africa (Mali), Europe (WFD)
Asia & Near/Middle East (Yemen, India/Pakistan, Saudi Arabia, Palestine)

Tuesday, February 25, 2020 -- Session 6: (JRK)
Part A -- COLORADO CLIMATE WATER-RESOURCES IMPACTS
Air-temperature & precipitation (rainfall/snow)
Streamflow (examples for major river basins [SEO water divisions]):

Tuesday, March 3, 2020 -- Session 7:
Part B -- COLORADO CLIMATE IMPACTS (JRK)
Extreme hydrologic events, surface water, groundwater

Part C – COLORADO CLIMATE IMPACTS (TDS)
Water-quality (surface water & groundwater), human health, environment

SUMMARY DISCUSSION
Science & technology, resource economics, political and institutional positions, strategies, and policy

Tuesday, March 10, 2020 – Session 8 (optional)
NREL Tour & Information Talk – National Renewable Energy Laboratory, Golden, CO

Status: 10/29/2019 TDS