

EVERSOURCE ENERGY CENTER

COLLOQUIUM Presented by



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“Influence of the multi-scale variability of weather on renewable energy generation and integration amid the water-energy nexus”

**Friday - March 16, 2018
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CASTLEMAN Rm 212**

Seminars will be broadcasted LIVE at:
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Bio: Dr. Baptiste François is a postdoctoral researcher in the Hydrosystems Research Group at the University of Massachusetts, Amherst. He has a PhD in hydrology and atmospheric sciences from the University of Grenoble-Alpes (France). His research focuses on the water-climate energy nexus. He is especially interested in the impact of climate change on the generation and integration of intermittent renewable energy sources into the future electricity grid. His postdoctoral research led him to work at the University of Padua (Italy, 1 year), at the SINTEF Energies research institute (Trondheim, Norway, 9 months) and at the University of Grenoble-Alpes (2 years). He is now working on assessing climate change impacts on hydrological extremes over the upper Missouri catchments. He currently serves as Associate Editor of the Journal of Hydrology. Baptiste enjoys outdoor activities such as skiing, hiking and rugby. He also has a passion for listening and playing music.

Abstract

A major part of renewable electricity production is characterized by a large degree of intermittency driven by the natural variability of climate factors such as air temperature, wind velocity, solar radiation, precipitation, evaporation, and river runoff. The main strategies to handle this intermittency include energy-storage, -transport, -diversity and -information. The three first strategies smooth out the variability of production in time and space, whereas the last one aims a better balance between production and demand.

This talk gives an overview of the main results that were obtained within the FP7 COMPLEX European project, (<http://owsgip.itc.utwente.nl/projects/complex/>), and especially from work on "Modeling Climate-Related Energies". By using a set of European regions, discussed topics include the complementarity among energy sources, the influence of the low-frequency variability of climate on renewable generation and penetration, the analysis of hydro-, solar- and wind- droughts and the influence of the temporal scale on the strategy used for harvesting renewable energy sources.