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## Department of Atmospheric Sciences Seminar Announcement

Department of Atmospheric Sciences, S.O.E.S.T., University of Hawai'i at Mānoa  
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# Stable water vapor isotopes and atmospheric deep convection

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**Date:** **Wednesday, October 23, 2019**  
**Refreshments:** **3:00pm at MSB courtyard**  
**Cookies, Coffee & Tea Provided**  
**Seminar Time:** **3:30pm**  
**Location:** **Marine Sciences Building, MSB 100**

### **Abstract:**

Stable water isotopes are useful tools in the study of the Earth system, with applications ranging from paleoclimatology to groundwater hydrology. A deeper understanding of how the hydrological cycle affects stable water isotopes is therefore a task of great importance. While many efforts have been made to study atmospheric water isotopes in rainfall or snow, their vapor phase has received less attention. Recent advancements in our observational capacity and the development of isotope-enabled numerical models have opened new opportunities for investigating water vapor isotopes, but there is still a critical lack of understanding at the process level. In this talk, I will start by reviewing what has been done in recent years, focusing particularly on how deep convective systems affect atmospheric water isotopes. I will then introduce two recently developed isotope-enabled cloud resolving models that can be used to study water isotopes at high resolution in either very idealized or realistic settings. Finally, I will present preliminary results from ongoing work to show how Lagrangian techniques can be combined with cloud resolving models to gain a quantitative understanding of the isotopic composition of the dynamical components of deep convective systems and of the processes that influence them.