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## Department of Atmospheric Sciences M.S. Defense Announcement

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# Cluster Analysis of Eastern and Central North Pacific Tropical Cyclones

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You are invited to a Zoom meeting.  
When: April 12, 2021 at 2:00PM HST

Register in advance for this meeting:

<https://hawaii.zoom.us/meeting/register/tJwld-murjovGdc7rQT1j7S-ELAvWARyIeEL>

After registering, you will receive a confirmation email containing information about joining the meeting.

### **Abstract:**

While the eastern and western north Pacific's hurricanes have been thoroughly studied, the central Pacific hurricanes are often overlooked, which poses a problem for those living in Hawaii. Using a mixture Gaussian model and EM algorithm, the Eastern and Central North Pacific tropical cyclones can be clustered into different track types. The best-track hurricane data from 1966 to 2019 has thus been sorted into four distinct tracks. Once separated, each track type is examined in terms of frequency, lifetime, accumulated cyclone energy, intensity, and maximum strength.

Additionally, the relationships with ENSO and MJO, along with the environmental conditions have been examined in order to gain a better understanding of regional TC activity over the CNP and ENP. In particular, Central Pacific and Eastern Pacific El Niño events have been identified in an attempt to identify an evolving trend of hurricanes in conjunction with changing sea surface temperature anomaly trends. The various phases of ENSO and MJO have been shown to influence which track type is more dominant, while the environmental conditions of a particular type can dictate the genesis location, maximum wind speed, intensity, and translation speed of tropical cyclones.