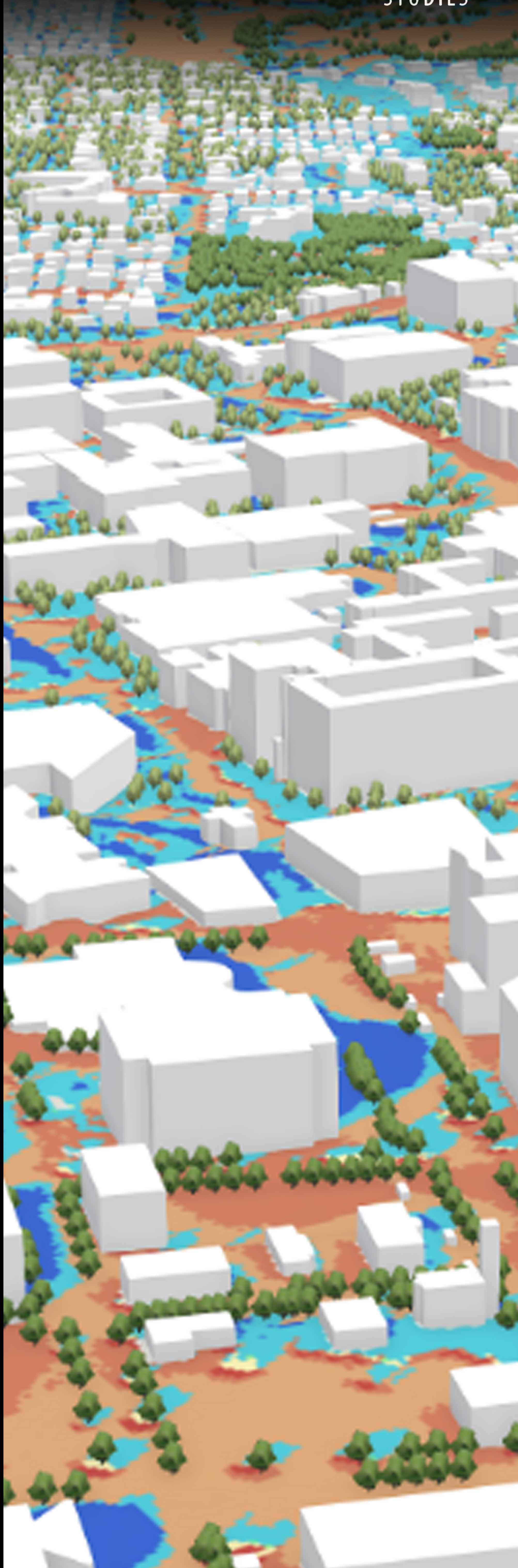




The Keck Institute for Space Studies
presents the following lecture:

What Makes a Model a Digital Twin? –

An Atmospheric Science-based Perspective

Dr. Dev Niyogi
The University of Texas at Austin

Wednesday, May 7, 2025

4:30 PM Refreshments
5:00 PM Lecture

Sharp Lecture Hall, Arms Building
California Institute of Technology

This presentation explores the evolution of digital twins from traditional modeling approaches. While models have long served as the backbone of knowledge representation and scenario development, digital twins have emerged as notable tools in the recent Artificial Intelligence/Machine Learning (AI/ML) era. Though conceptualized over three decades ago, the recent popularization of digital twins into prominence comes with hundreds of applications, accompanied by numerous definitions.

This talk examines a curiosity-driven question: What is the difference between a model and a digital twin? What are some of the characteristics or defining attributes of a digital twin? By analyzing their defining characteristics and applications, the talk will seek to explore this distinction. By virtue of the expertise and applications undertaken, the perspectives is grounded in atmospheric modeling and urban infrastructure applications, but it is suggested that the conclusions and perceptions transcend specific domains, offering generalizable principles applicable across disciplines.

Register here or on our
website: kiss.caltech.edu



Registration is required for this lecture as seating is limited.