DATA IN THE CLASSROOM: Investigating El Niño Using Real Data Example of Module Integration

There are many ways to integrate some or all of the lessons in this module into your course. One example, aimed at middle school teachers, is provided below.

Topic: Earth Science (Climate: Ocean and Atmospheric Circulation)
Grade level: Middle School (6th–8th grade)
Example: This example of module integration uses a course model from the NGSS Middle School Phenomenon Model Course 2.
The bundle organizes performance expectations with a focus on helping students build an understanding of causes of diverse climates.

NGSS Model Course 2 – Bundle 2 What causes climates to be so different across the Earth?

MS-PS4-3. Integrate qualitative scientific and technical information to support the claim that digitized signals are a more reliable way to encode and transmit information than analog signals.

MS-ESS2-5. Collect data to provide evidence for how the motions and complex interactions of air masses result in changes in weather conditions.

MS-ESS2-6. Develop and use a model to describe how unequal heating and rotation of the Earth cause patterns of atmospheric and oceanic circulation that determine regional climates.

Progression of Performance Expectations that follow MS-ESS2-6: MS-ESS3-2, MS-ETS1-1, MS-ETS1-2.

Investigating El Niño can be integrated into a course sequence here **Investigating El Niño Module**

Integrate part of the module into a sequence of lessons on climate, ocean & atmosphere.

Example phenomenon:

* In 2015, waters along coastal California were unusually warm. Red crabs that are typically common in the warm waters of Mexico were washing up along beaches of California.

Module lessons that support NGSS standard (MS-ESS2-6):

- Level 1 Activity: Reading SSST
- Level 2 Activity: Looking at SST Another Way
- Level 3 Activity: Detecting El Niño