Are you looking for interactive lesson plans using visualizations and authentic data to address important processes and phenomena in the Earth System?

Check out these story maps. Story maps are an immersive means of storytelling by combining rich narrative text with interactive maps and NASA data, along with other multimedia content like images and videos in a 5E Model of the Earth System phenomena that you teach.

See full descriptions below the table:

**Atmosphere Story Maps**
- Creation of Urban Heat Islands
- Hurricanes as Heat Engines

**Biosphere Story Maps**
- Global Phytoplankton Distribution

**Cryosphere Story Maps**
- Sea Ice Extent and the Earth System

**Geosphere Story Maps**
- Volcanic Eruptions
Visit our Story Maps by clicking the links below:

1. The [Creation of the Urban Heat Island Story Map](#) engages students in the exploration of the *urban heat island effect* using land surface temperature and vegetation data. Students also investigate the processes that create differences in surface temperatures, as well as how human activities have led to the creation of urban heat islands.

2. In the [Hurricanes as Heat Engines Story Map](#), students use various visualizations (i.e. images, charts, and graphs) to explore the energy exchange that occurs when hurricanes extract heat energy from the ocean. Using sea surface temperature data, they simulate the conditions that allow hurricanes to form, and observe the effects of hurricanes on the Earth System.

3. The [Global Phytoplankton Distribution Story Map](#) students use chlorophyll concentration data to explore global distribution patterns of phytoplankton. Students also investigate the processes that allow phytoplankton populations to thrive, as well as how their role in the carbon cycle affects the other spheres of the Earth System.

4. In the [Sea Ice Extent and the Earth System Story Map](#), students explore changes in sea ice extent as it relates to other spheres within the Earth System. They also develop an iterative concept map that they will use to document their understanding of the Earth
System as it relates to changes in sea ice.

5. In the Volcanoes Eruptions Story Map, students explore the formation and impacts of ash and aerosols from volcanic eruptions around the world. They also investigate how ash and aerosols produced from volcanic eruptions are hazardous to the human ecosystem. Students graph the concentrations of aerosols from a volcanic eruption over time.

6. In the Ocean Circulation Patterns Story Map students analyze ocean circulation patterns as they relate to the world's ocean garbage patches using NASA ocean currents data. Students investigate the forces that contribute to ocean circulation patterns, and how debris, especially plastics, travel from land to garbage patches, as well as how humans have contributed to ocean plastic pollution.