

GCCE DICCE Goals

- Increase the number of people, particularly high school students, using NASA Earth observation data, Earth system models, and/or simulations to investigate and analyze global climate change issues
- Improve teaching and learning about global climate change

DICCE Activities

- Developing, piloting, and disseminating a new interactive pathway and online learning environment that help high school teachers select NASA satellite mission data and adapt instructional templates for their students' climate change investigations.
- Helping teachers use these resources to increase their students' knowledge about climate change.
- Conducting pilot testing of these resources and processes with teachers and their students over a two year span

Geographic regions of students and teachers involved in the project:

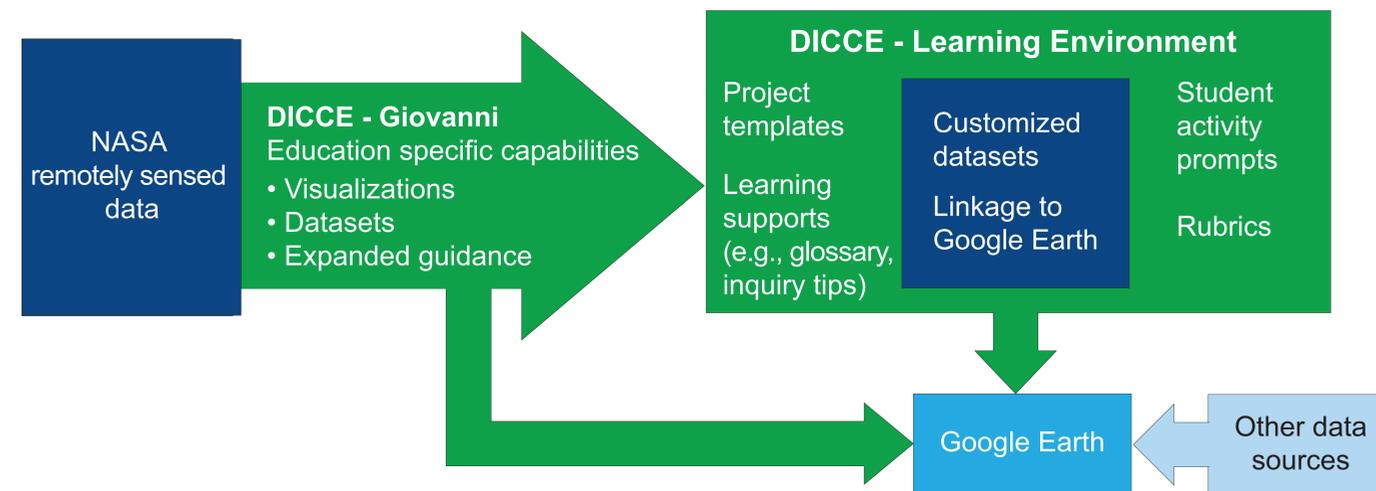
- New Hampshire, Maine, Northern California, Southern California, Northern New Mexico

Synopsis

DICCE helps teachers learn about the data characteristics (e.g., how, when, and why the data were collected, plus the data structures) and make informed decisions about what data representations are grade-appropriate for their students' investigations.

DICCE teachers create projects, which are collections of representations for one or more scenarios pertaining to climate change in the teacher's local region, as well as expanded regional or global data that provide a frame of reference for understanding the significance of the local data.

DICCE Classroom Project Development Process



Teacher Project Development Pathway

A. DICCE-Giovanni (DICCE-G):

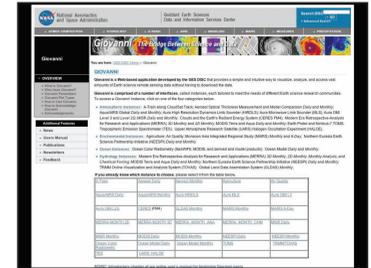
- Teachers select Giovanni data representations (e.g., fixed maps, time-based animations of map sequences, fixed graphs, time-based animations of graphs, tables) from sets of choices in three data domains: land, oceans, and atmosphere.
- Help includes laymen-friendly background information about the datasets, explanations of how to interpret the data representations, and navigation assistance.

B. DICCE-Learning Environment (DICCE-LE):

- Teachers import their DICCE-G project data representations into DICCE-LE
- Each imported visualization carries background information about the data.
- Using templates, teachers build sequences of data-centered inquiry activities for their projects.
- Templates consist of adaptable prompts for student activities about whether climate change is occurring in the local area compared to global trends.
- Functions as platform for presenting data, curricular prompts, and supports for diverse students
- Contains near-transfer assessment tasks about climate in a different locale.

Leveraging prior work from

- **Goddard Interactive Online Visualization and Analysis Infrastructure (Giovanni)**



- **Data Sets and Inquiry in Geoscience Education (DIGS):**

an online problem-based curriculum unit and performance assessment for high school students to investigate climate change in Phoenix and Chicago, using datasets from government agencies such as the EPA and the National Climate Data Center.



Prior Work	DICCE
DIGS climate change investigations of Phoenix and Chicago (SRI)	DICCE-LE curricular project template customizable for climate change investigation in any location (SRI, EDC)
Giovanni data access geared to scientists and postsecondary students (GES DISC)	DICCE-G simplified data access geared to high school teachers and students (GES DISC)
DIGS website with student materials, teacher guidelines, and assessment scoring rubrics about investigating climate in Phoenix and Chicago (SRI)	DICCE teacher project development process, plus curricular and assessment resources that use principles of UDL (SRI, GES DISC, EDC)
DIGS templates for student presentations about climate change in Phoenix (SRI)	DICCE customizations for student presentations about climate change in the local areas, plus space for students to post presentations about climate change in their local areas (SRI, EDC)