



## Puerto Rico Climate Change and Human Health Teaching Model

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**Introduction** – The American Meteorological Society (AMS) offered a formal training on climate studies including site visits at the National Centers for Weather and Climate Prediction, NASA Goddard Space Flight Center and the Atmospheric and Astronomical Observatory of Howard University. The AMS experience shared essential tools to revise curriculum with new evidence on climate change, teaching simulations and a year’s license of educational material on climate studies in order to disseminate information to other audiences. This knowledge was transferred into the Puerto Rico Climate Change and Human Health Teaching Model funded by the Environmental Protection Agency. The Puerto Rico Climate Change and Human Health Teaching Model has been implemented throughout ten (10) junior high schools across eight (8) municipalities in Puerto Rico to better prepare science teachers and students on climate change and air quality impacts on human health.

**Methods** – The model for the implementation of the project consists of three (3) phases: Saturday Academy, Team Teaching, and Summer Academy (Figure 1). This model fosters the development of an integrated education curriculum that provides facts, but also encourages the development of skills for an scientific literate professional prepared to respond to climate change challenges.

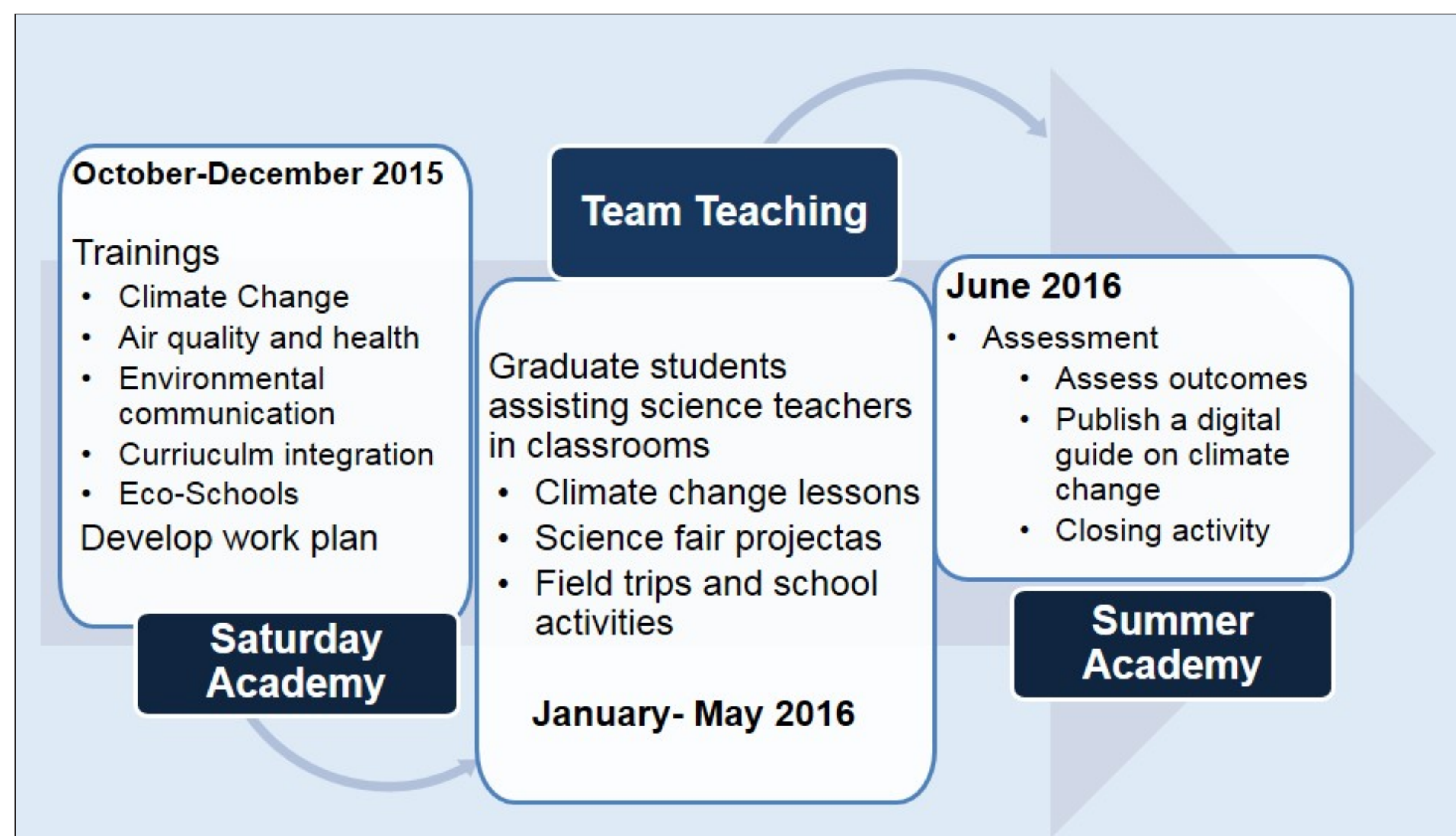


Figure 1. Climate Change & Human Health Teaching Model

Graduate students of the School of Environmental Affairs were selected based on competencies (written & oral skills, and previous knowledge and interest on climate change and air quality). Science teachers were selected based on school level and geographic broadness (Figure 2).

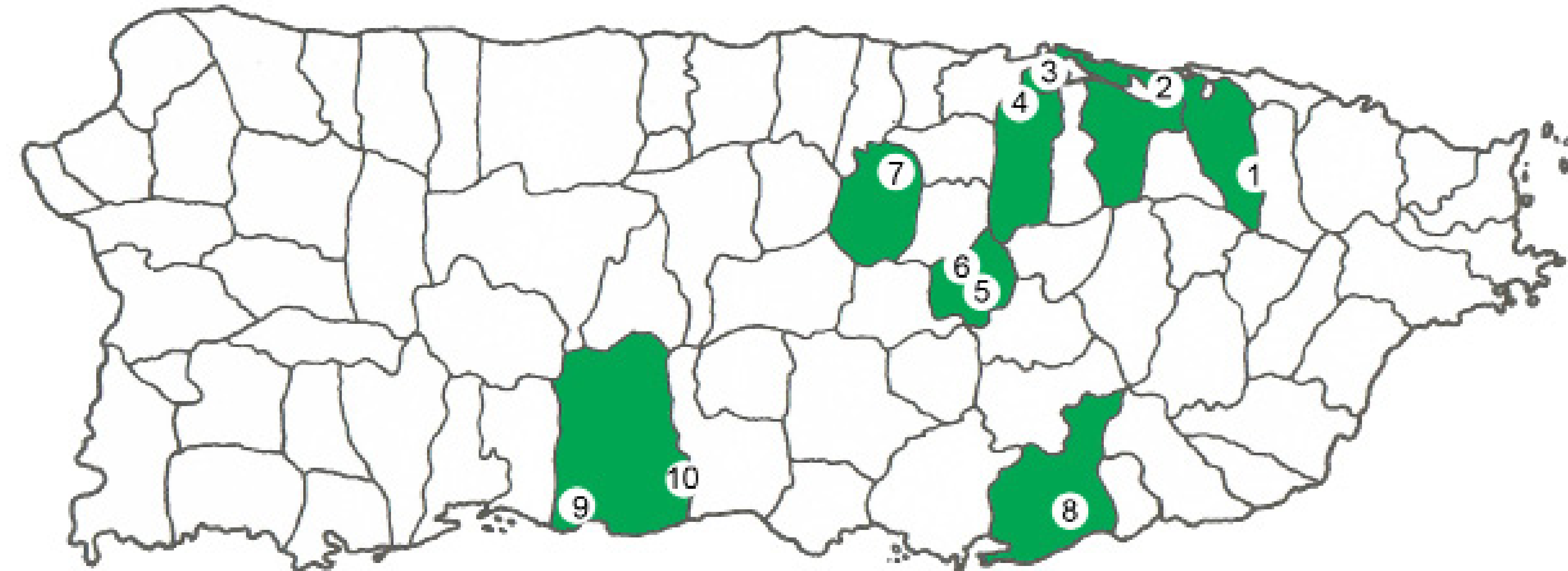


Figure 2. Schools Selected Across Municipalities in Puerto Rico

The project process and outcomes will be assessed utilizing quantitative and qualitative methods to measure participant satisfaction and the knowledge and attitudes on project contents. The assessment protocol and pre-post instruments have IRB approval (01-525-15) as expedited by UMET’s Office of Compliance.

**Preliminary results** – The teaching team model was implemented in its first phase at ten (10) public schools across eight (8) municipalities in Puerto Rico: Bayamon, Corozal, Guayama, San Juan, Cataño, Carolina, Comerío and Ponce (Table 1) with five (5) graduate students and ten (10) science teachers (Figure 3).

Table 1. *Participating Schools by Region, Level and Enrollment*

School	Region	Level	# Enrollment	Under Improvement Plan
1. Juan Ponce de León	San Juan	Junior High	420	yes
2. Jesús T. Piñero	Carolina	Middle	460	yes
3. Juan Ramón Jiménez	Bayamón	Middle	540	yes
4. Onofre Carballeira	Cataño	Middle	405	no
5. Ramón Alejandro Ayala	Comerio	Junior High	473	yes
6. Luis Muñoz Marín	Comerio	Middle	310	yes
7. Superior Agrícola Vocacional	Corozal	Junior High	90	no
8. Genaro Cautiño Vázquez	Guayama	Middle	400	no
9. Lila M. Mayoral Wirshing	Ponce	Middle	300	yes
10. Juan Serrallés	Ponce	Junior High	115	yes
<b>Total</b>			<b>3,513</b>	<b>7</b>



Figure 3. Project Team: Science teachers & graduate students

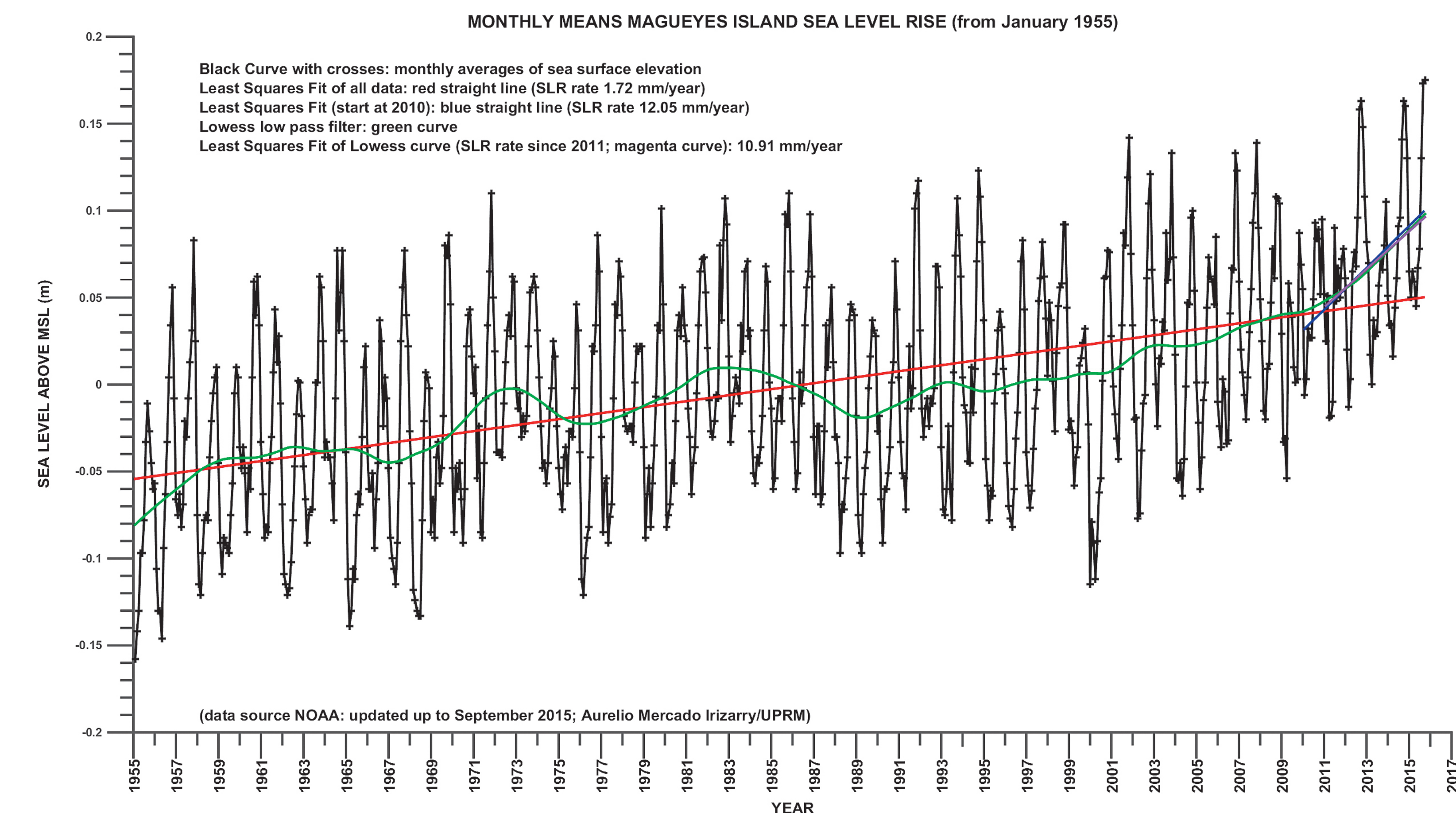


Figure 4. Sea level rise data of the South Coast of Puerto Rico from 1955 to present.

The team has completed the Climate Change and Air Quality workshops during the Saturday Academy. Workshops and site visits related to climate change literacy with data applied to Puerto Rico (Figure 4 & 5), and how to effectively communicate to other audiences. They also participated in workshops on curriculum integration strategies, research and critical thinking skills. The teaching teams are working together on the development of classroom lessons (Figure 6).

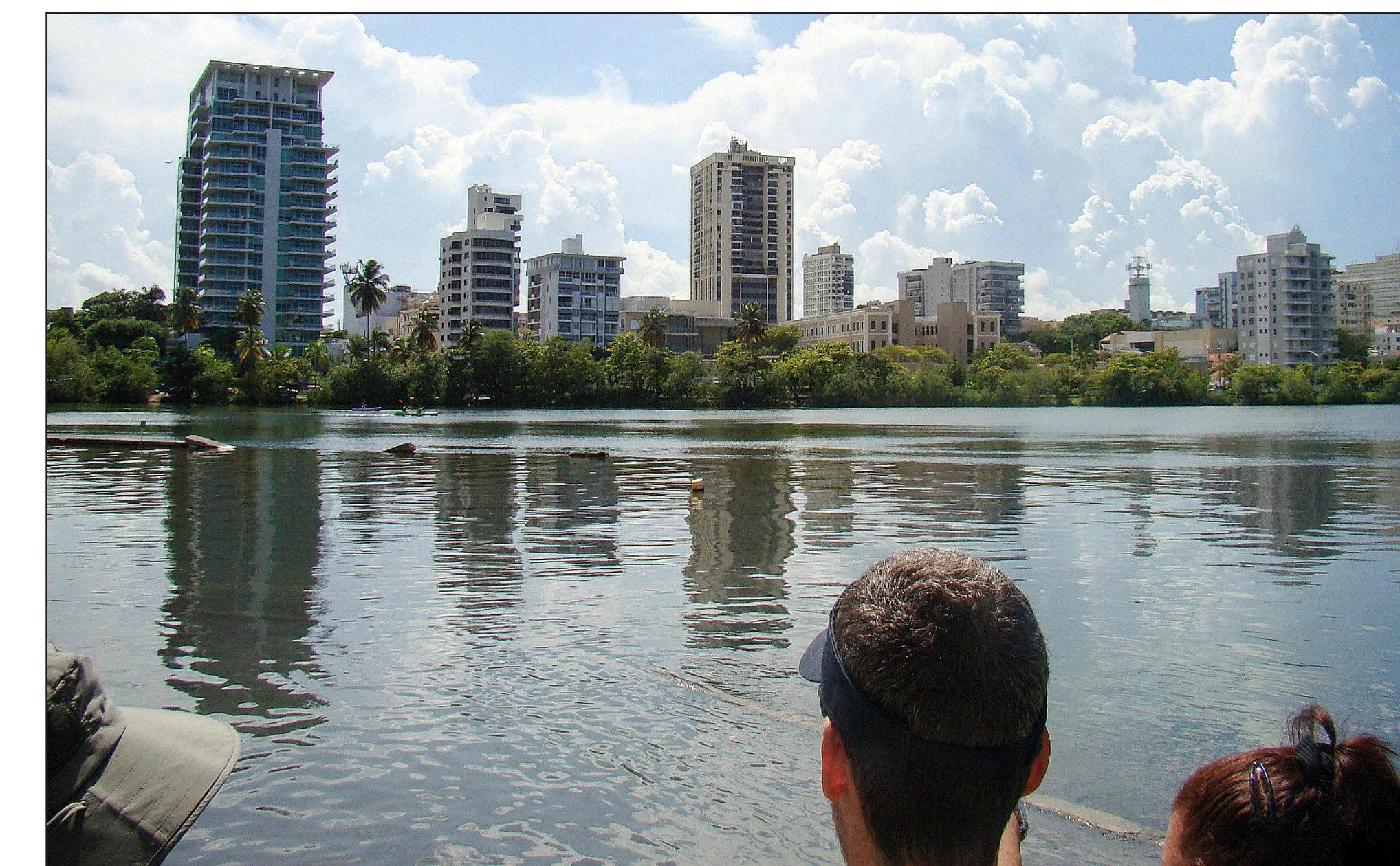


Figure 5. Visit to flooded parking lot in San Juan



Figure 6. Group dynamics

The project team will develop and implement classroom lessons on a weekly basis following science standards and will provide a series of monthly climate change and environmental quality activities to enhance the professional development of teachers with regards to research and science fair projects. During January to May 2016, the project team will be impacting approximately 3,513 students from grades 7-9 (Table 1) and enhancing their learning experiences on climate change and its effects on human health and the environment. Finally, the best lessons and practices on climate change and improving air quality will be published in a bilingual educational activity guide for science teachers.

### References

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