

Airborne Astronomy Ambassadors (AAA): Science & Learning Collaborations

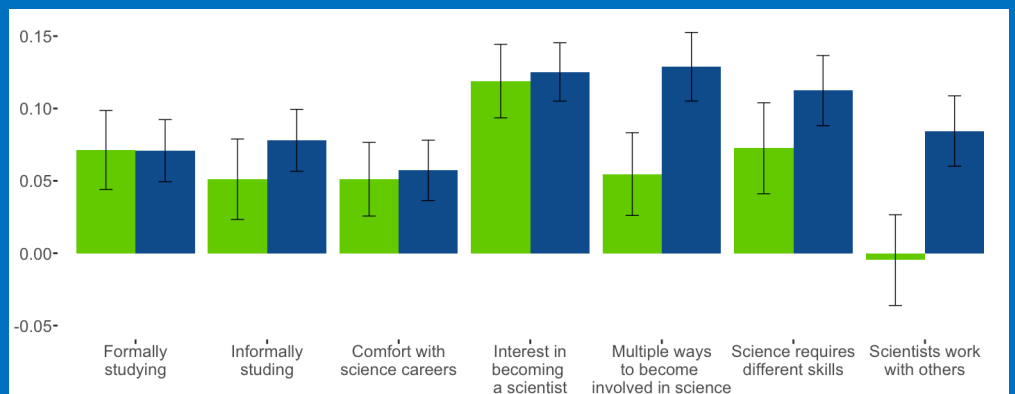
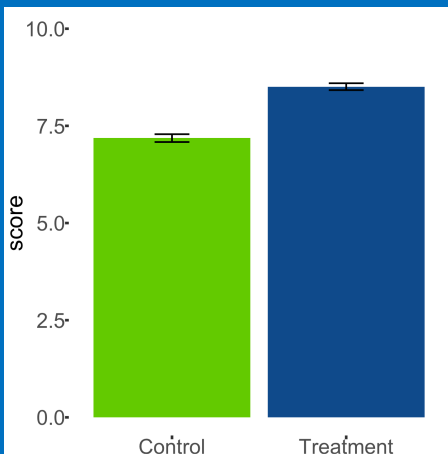
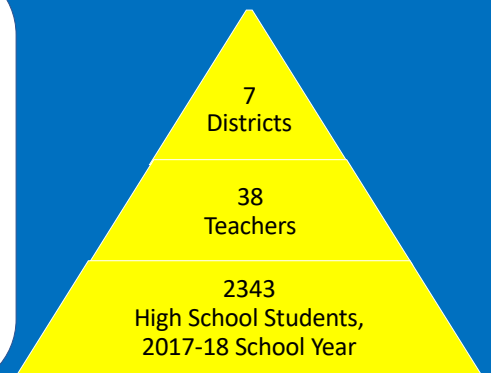
Dana Backman, Coral Clark, **Pamela Harman** (SETI Institute)
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The Airborne Astronomy Ambassadors program aims to measurably enhance student STEM learning & engagement in selected school districts via professional development for high school science teachers consisting of: (1) STEM training in astrophysics & planetary science content & pedagogy delivered via webinars & in-person workshops; (2) a week-long STEM immersion experience at NASA's science research aircraft facility in Palmdale, California, including participation in research flights on the Stratospheric Observatory for Infrared Astronomy (SOFIA); (3) follow-through involving webinars fostering connections with astrophysics & planetary science SMEs. Impact on student STEM learning & engagement is evaluated via controlled protocols.



In 2017 the AAA program staff produced a 10-day electromagnetic spectrum & multi-wavelength astronomy curriculum module, aligned with NGSS, for AAA teachers to incorporate into their high school science courses. To assess the effectiveness of this curriculum module, the SETI Institute hired WestEd to perform a randomized control trial (RCT) during the 2017-18 school year, testing student content learning and STEM engagement. The **treatment group** consisted of 1473 students who received the new curriculum module from Cycle 5 teachers who had already flown on SOFIA. The **control group** consisted of 870 students who received "business as usual" electromagnetic spectrum instruction from Cycle 6 teachers who had not yet flown on SOFIA. Both Cycle 5 and Cycle 6 teachers will use the new curriculum module in the 2018-19 school year.



(Left) Average post-curriculum-delivery assessment of student content knowledge for treatment and control groups. Treatment students scored significantly higher than control students. (Right) Change from pre- to post-ratings for seven retrospective STEM attitude questions. Note very large difference in regards understanding that scientists work with others.