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Finding the Silver Lining: Benefits and lessons learned from pivot to virtual short courses for instructor professional development for classroom and field geoscience

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GETSI (GEodesy Tools for Societal Issues) is a US National Science Foundation-funded program that develops, tests, and disseminates data-rich and societally relevant curriculum for undergraduate field and classroom teaching. GETSI has published 13 modules (~2-3 weeks of class time each) co-authored by faculty at varied colleges and universities (serc.carleton.edu/getsi). The dissemination plan for the 2020-21 academic year was originally entirely in-person workshops. When the COVID19 pandemic necessitated the postponement and/or cancellation of essentially all face-to-face activities, the project pivoted to an online dissemination model for the 2020-21 academic year and convened a GETSI Virtual Mini Short Course Series and a virtual short course: Teaching in the field with SfM and RTK GPS/GNSS.

The Virtual Mini Short Course Series was October 2020-April 2021 and included 9 mini-courses. Unlike a webinar, the majority of the mini-course consisted of time for participants to work individually and collaboratively through portions of the student exercises, discuss teaching ideas, and develop a plan for implementation. The series attracted a wider range of participants from a broader range of institutions than many in-person events. Participants could choose to attend one or more of the mini-courses, depending on their area(s) of interest. Each 2-hour mini-course, co-lead by a GETSI PI and module co-author(s), highlighted a different GETSI module and offered participants a small stipend for completing an implementation plan for using GETSI materials in their classroom. We used a variety of active learning strategies during the mini courses, including think-pair-shares, polling, report-outs, gallery tours, and jigsaws.

The two virtual short courses "Teaching in the Field with SfM and GPS" brought together graduate students and college/university faculty into an online learning cohort. Each institutional team received an RTK GPS receiver pair to practice with for several weeks and the cohort worked through similar field tasks separately, while periodically reconvening online to share challenges and accomplishments.

The lessons learned from this unanticipated shift to virtual professional development have

implications moving forward for designing high-quality, interactive professional development for the whole STEM community.