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Creatively Communicating Synthetic Aperture Radar (SAR)

Concepts For Forest Monitoring Applications

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PROJECT DESCRIPTION: Earth observations from Synthetic Aperture Radar (SAR) can provide unique information related to forest structure and condition. Furthermore, SAR has many potential applications in forest monitoring systems, particularly where clouds have impeded traditional optical observations. Currently, there is a wealth of freely-available SAR datasets from Sentinel-1 and ALOS PALSAR, as well as several upcoming open-data SAR missions (e.g. NISAR, BIOMASS). However, most existing training materials on SAR/radar processing is highly technical, and traditionally out of reach to the applied sciences community. Given these upcoming missions and knowledge gap, there is an immense need and demand for resources that effectively explain how to use and process these datasets for specific applications.

To this end, SERVIR, part of the NASA Applied Sciences Capacity Building Program, has developed the SAR Handbook—an easily-understandable textbook collecting state-of-the-art methods, theoretical background, and training materials on the use of SAR for forest monitoring and biomass estimation. This project will center on video production support and digital media creative activities to promote global use of the SAR Handbook and for distribution at upcoming events such as conferences and training sessions.

STUDENT DUTIES, CONTRIBUTIONS, AND OUTCOMES: The selected participant will support the creation of an animated explainer video, editing of compiled interview footage, layouts for 2 explainer brochures and additional design collateral (i.e. bookmarks and stickers) for NASA Earth Science websites and conference events. The videos and digital media will be used by the NASA-USAID SERVIR project to promote the use of satellite data for forest carbon monitoring and biomass estimation. Skill-based outcomes will include gaining proficiency with the Adobe Creative Suite, including audio and video editing in Audacity and Premiere, and layout and graphic creation abilities with InDesign and Illustrator. Knowledge-based outcomes will include a greater understanding of the principles behind SAR image processing as well as applications relevant to forestry (i.e. forest height estimation, mangrove monitoring, and sampling design).

STUDENT SELECTION CRITERIA: The ideal candidate will be an excellent communicator and have creative ideas but also be able to follow established scripts. Preference will be given to

students that have completed at least one course in animation or demonstrated equivalent experience; however, this project is open to students at all academic ranks and from any academic discipline. Candidates must be able to take direction well and distill ideas from staff scientists and technical materials, as well as have basic familiarity with the Adobe Creative Suite.

FACULTY/RESEARCH STAFF MENTORSHIP: Throughout the RCEU program duration, the SERVIR SAR Handbook team leads (Leah Kucera, Africa Flores-Anderson, Kelsey Herndon, and Emil Cherrington) will be the primary points of contact for student mentorship and check-ins. Leah Kucera, a research scientist and design professional, will be the primary trainer on distilling complex scientific concepts through the use of infographics and storytelling. Trainings will be held on content development for specific media types, such as videography, posters, and booth collateral (i.e. posters, stickers and brochures). Weekly check-in meetings will be held for an hour once per week, with the opportunity to schedule additional review meetings. In addition, planned skill-building and learning opportunities will be held every other week. These will consist of resume roundtables, science communication training modules (i.e. data visualization best practices,) and professional development and networking (i.e. virtual meetings with NASA Earth Observatory and JPL Studio design professionals) showcasing the variety of creative opportunities available throughout NASA Earth Sciences.