NEON LiDAR Technical Working Group

2020 Annual Report

Introduction

Since its inception, NEON has relied on expertise within the science, education, and engineering communities to advise on key areas impacting the design, construction, and maintenance of the observatory with the goal to optimize its operation. Currently, two types of external advisory bodies support staff and leadership in making key decisions that guide all of NEON's activities: the Science, Technology & Education Advisory Committee (STEAC) and Technical Working Groups (TWGs). Both bodies are comprised of experts nominated to serve in these roles who are selected by NEON staff following a rigorous selection process.

NEON currently relies upon input from 22 TWGs. These groups play an important role by providing input to NEON's data collection and processing methods and ensuring that NEON infrastructure, data, and programs are a valuable community resource. Working groups are participatory and advisory; they are often tasked with providing input on issues that have scientific, educational, engineering, or operational implications.

This document includes a summary of activities, recommendations, and NEON's response to those recommendations for the LiDAR TWG during the 2020 funding year (November 2019-October 2020)

The LiDAR Technical Working Group assesses and recommends strategies for developing and implementing techniques for instrument calibration and data validation, operational instrument testing, and product data formatting for vegetation remote sensing.

Q1 – November 2019-January 2020

Summary of Activities

No meeting in Q1. It took a lot longer than expected to pull information about past AOP data product catalogs, combined with other recent priorities. This info is in final review but will be sent out to the TWG very soon looking for feedback on our LiDAR data products. A meeting will be set up during Q2 to discuss products and relevant recommendations.

TWG Recommendations

No new recommendations yet but it is worth noting that lidar instrument requirements that the TWG gave feedback on in FY19 have been included in an RFP to acquire a new lidar system.

NEON Response

N/A

Notes

No recent activity but planning to reach out for feedback in near future.

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The National Ecological Observatory Network (NEON) is a major facility fully funded by the National Science Foundation and operated by Battelle.

Q2 – February 2020-April 2020

Summary of Activities

No meetings were held in Q2, but feedback was requested in two separate emails for lidar instrument/collection parameters and also lidar data products (current products and suggestions for improvements or future additions).

TWG Recommendations

In terms of replacing the lidar instruments, one TWG member stressed buying an instrument that would give high quality waveforms. Another mentioned a recent data challenge that suggested that higher point density data would help with tree canopy segmentation. And a third offered a reminder of the challenges dealing with data consistency over the 30-year mission considering that new lidar instruments can detect vegetation features that previous generations cannot.

NEON Response

We took these recommendations into account during the evaluation of vendor proposals for a lidar replacement. We are still waiting on feedback about data products.

Q3 – May 2020-July 2020

Summary of Activities

No activity for Q3.

TWG Recommendations

N/A

NEON Response

N/A

Additional Notes

Plan to request one more round of feedback on AOP LiDAR products.

Q4 – August 2020-October 2020

Summary of Activities

No activity for Q4.

TWG Recommendations

N/A

NEON Response

N/A

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