Sustaining Matplotlib and Cartopy: Revised Work Plan

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Contents

To reduce the budget for the initial proposal we will:

- reduce Lucas' support from 20% to ̃10% FTE for years 1-5
- reduce Caswell's support from 20% to ̃15% FTE for years 1-5
- reduce the support for the second RSE from 5 years to 3 years and delay the start until year 2
- eliminating the developer experience engineer in year 5
- eliminating the RSE travel budget in the year 1 and all travel for Caswell and Lucas

To reduce the scope we would make significant cuts to new development, smaller cuts to maintenance effort and delay starting the consultation at full effort until Y2. For new developments we would eliminate the legend refactor from Matplotlib, the tiled image work from cartopy, and limit any additional developments identified during the consultation. The tick refactor and the path transformation would remain in scope but have a longer timeline than originally proposed.

1.6 Work Plan

We plan to split the effort with 75% for Matplotlib and 25% for Cartopy. Within the Matplotlib fraction we plan 65% for maintenance, 20% for new developent, and 15% for community engagement and community and project management. We intend to target this distribution of effort across the lifetime of the grant, but there may be variations year-to-year. For Cartopy, the proposed split in effort will be roughly 30% for maintenance, 60% for new developent, and 10% for community engagement and community and project management.

1.6.1 Consultation

Starting part way through Y1 Dr. Caswell, Dr. Sunden, Dr. Lucas, and the RSE will conduct consultation meetings. We will start Y1Q4 with NASA researchers identified through our professional networks and by the end of Y2Q2 we will develop and deploy a plan to publicize these meetings more widely, to be available to all NASA projects who are interested.

1.6.2 General Maintenance

Throughout the project Dr. Caswell, Dr. Sunden, Dr. Lucas, and the RSE will work on general maintenance and community engagement of both Matplotlib and Cartopy. This includes, but is not limited to, fixing bugs, reviewing Pull Requests, answering user questions, managing releases, and welcoming new contributors to the project.

1.6.3 Cartopy Refactor

The Cartopy refactor will begin in Y1 by Dr. Lucas who will be joined in the effort by an RSE in Y2-Y4 on the grant. During the first two years of the grant there will be an emphasis on integrating the new Matplotlib data model into the Cartopy codebase, with the work planned to be included in a release by Y3Q1. Y3-4 will focus on implementing the path transformations utilizing the new Matplotlib data model as appropriate. Y5 will be spent on improving the performance of the methods. Throughout the grant, general maintenance and community work will be performed in parallel with the explicit Cartopy refactor tasks.

1.6.4 Matplotlib Enhancements

The Ticker enhancement we will have an 18 month development cycles (aligned with our 6-month release cycle) in parallel with consultation, general maintenance and community work. The first six months are for planning and design, with another 6 months for implementation, testing, and documentation. Once the feature is finished we will include it in a feature release as an experimental option. During the final 6 months, improvements and bug fixes will be based on user feedback. If the feedback is positive, the feature will be made the default in the next release. The Ticker work will begin in Y2Q2 once Dr. Sunden and the second RSE are supported.

In Y1 of the grant Dr. Caswell will continue to supervise work on the Matplotlib data model work currently supported by a ROSES 2020 E.7 grant.

1.6.5 Work Process

All work under this proposal will undergo the same review process as any other contribution. We encourage many small PRs to reduce risk. At least one maintainer not supported on this proposal will need to sign off on any changes before they are merged. This disseminates understanding of the proposed work and ensures community buy-in. Finally, by merging changes to the default branch continuously throughout the period of work the incremental improvements will be released as part of our semiannual release cadence.

The work will be presented regularly at conferences by all team members.

1.6.6 Grant Management

Dr. Caswell of BNL (also the Matplotlib Project Lead) is the PI of the proposed development. He is responsible for the quality and direction of the proposed work and the proper use of all awarded funds. He is also responsible for all management and budget issues, and is the final authority for this task.

Dr. Lucas of UC Boulder is the institutional PI for UC Boulder and is responsible for the Cartopy work including the proposed refactor.