GeoSci: Practices to Collaboratively Build Online Resources for Geophysics Education

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What happens when you apply best practices of software development to the development of educational resources? GeoSci (http://geosci.xyz) is our experiment examining this question.

In 2007, a web-based “textbook” resource: Geophysics for Practicing Geoscientists (GPG, https://www.eoas.ubc.ca/courses/eosc350/content/index.htm) was created to serve as the primary resource for an undergraduate applied geophysics course at UBC taken primarily by non-geophysics majors. The web-based resource, allowed students to navigate through the concepts in a nonlinear way using hyperlinks, and enabled interactive content to be embedded. Subsequent to the web-based release for our UBC course, this resource has also seen widespread international use across the geophysical community.

The available resources and best practices have advanced significantly since 2007. The format in which the GPG was originally developed (raw html and css) hindered improvements and thus maintenance and development of the resource was essentially reduced to correcting typos. Bringing this resource to sustainable state in which it can be built upon, edited and adapted has required looking to other disciplines such as software maintenance and development. By applying leading practices from open source software development, including versioning, testing, automated deployment as well as open development practices, such as issue tracking and employing creative commons licensing, we have worked to create a revamped GPG (http://gpg.geosci.xyz) that can be collaborated on and extended. The GPG and a companion resource for electromagnetics have been worked on by over 25 people, with much of the development happening in parallel.

In this presentation, we will share our experience, identify what we see as some of the key learnings that have enabled collaboration in resource development, and present a vision for how we see these resources being sustained in the future.