

Budget justification: University of Idaho

1. Personnel (*\$180,549 total over three years*)

For all personnel, we assume a 3% annual increase in salaries.

The University of Idaho has determined the salary year for senior personnel to be based on the calendar year.

A. Senior Personnel: (*\$14,089 total over three years*)

- a. *Eric Mittelstaedt.* We request two weeks of calendar year salary per year for Dr. Mittelstaedt (~0.05 Full Time Equivalent, FTE). who will mentor the graduate student and post-doctoral researcher. PI Mittelstaedt's current annual rate is \$88,884 yielding requested support at \$4,558, \$4,695, and \$4,836 in years 1, 2, and 3 with a 3% increase per year.

B. Other Personnel: (*\$166,460 total over three years*)

- a. *Graduate student.* We request two years of support (including two summers) for a graduate student who will focus their efforts on addressing research Objective 1 and 2 in collaboration with the proposed WSU graduate student. The graduate student will work 0.5 FTE with a full-time salary of \$52,000 that will increase 3% per year, yielding \$26,000 in year 1 and \$26,780 in year 2.
- b. *Post-Doctoral Researcher.* We request support in year 2 and year 3 for a post-doctoral researcher who will help mentor the graduate student working on Objective 2 and the WSU graduate student working on Objective 1, as well as focus their personal research efforts on Objective 3. The post-doctoral researcher will be salaried at \$56,000 annually with a 3% increase each year.

C. Fringe Benefits: (*\$53,886 total over three years*)

The University of Idaho Consolidated fringe rates are 30.1% for faculty, 42% for staff and post-doctoral researchers, and 3.6% for students. Fringe rates are listed as the projected FY23 rates that are pending approval from the Department of Health and Human Services (DHHS). The University of Idaho FY23 fringe rate agreement was submitted to DHHS in December 2021 but has not yet been approved by DHHS. If selected for funding, and if the rate agreement is not approved at the time of award, the approved (not projected) rates will be utilized.

2. Non-Personnel Costs

E. Travel: (*\$17,400 total over three years*)

We request funds to support travel to the annual Fall Meeting of the American Geophysical Union. The graduate student and the PI will attend in years 1 and 2, and the post-doctoral researcher will attend in years 2 and 3. In each year, we estimate registration (\$600 faculty and post-doctoral researcher, \$300 graduate), abstract fees (\$70/each abstract), airfare

(\$1000), hotel (\$200/night x 5 nights = \$1000), and per diem (\$55/day x 6 days) for a total of \$3000 per faculty or post-doctoral researcher and \$2700 per graduate attendee.

F. Participant Support: *(\$60,000 total over three years)*

Undergraduate Stipends: *(\$30,000/yr; years 1 and 2)* Stipends are requested to support five undergraduate students during their participation in the summer portions of the proposed hands-on game development program focused on technical training and deep Earth processes.

G. Other Direct Costs

G-1 Materials and Supplies *(\$16,755 total over three years)*

To support the research efforts of the graduate student, post-doctoral researcher, and PI, we request funds for supporting software and computing hardware. We request funds to cover annual licenses for MATLAB (data processing and analysis), Adobe Illustrator (figure and poster creation), and the Slack communications platform (\$8/mth/person). We request funds for three laptop computers (\$3500/each) for software development and testing, data processing, model visualization, and manuscript and figure preparation.

G-2 Publication and Printing Costs *(\$11,800 total over three years)*

We request funds for dissemination of our results. We anticipate that 1-2 posters each year (estimated at \$200/poster) will be presented at the American Geophysical Union Fall Meeting and a total of 3-4 journal articles will be published based on the proposed work. In response to recent mandates for federally funded research to soon be openly available, many publishers such as AGU are already converting journals to open access, resulting in increased publishing costs for Authors. We estimate costs of \$3600/article, based upon the rate as of 29 September 2022 in AGU journals such as Journal of Geophysical Research and Tectonics.

G-3 Consultant Services *(none requested)*

G-4 Computing Services: *(\$2,500 total over three years)*

Summer Software Licenses: *(\$1250/yr in years 1 and 2)* We request funds to cover license fees for the Slack collaboration software (\$8/person/mo), the Adobe® suite of art tools (\$250/yr), and the Unity software development package (Professional License, \$500/yr). These software packages will be used by the undergraduate developers during the proposed science-based game development program.

G-5 Subawards *(none requested)*

G-6 Other (\$25,305 total over three years)

We request funds to cover graduate student tuition and fees for the graduate student in years 1 and 2. Tuition and Fees for academic year 2022/2023 at the University of Idaho are \$12,050. We estimate that UI tuition and fees will increase ~10% per year.

I. Indirect Costs: (\$141,445 total over three years)

The University of Idaho Federally negotiated Indirect Cost rate is 50.0%. Graduate Student Tuition, Fees, and Insurance are not subject to indirect costs. Subcontract costs in excess of \$25,000 are not subject to indirect costs.