

StraboSpot for Sedimentary Geology: Encouraging community involvement and feedback through workshops and fieldtrips

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Abstract

An NSF EarthCube-funded project supported a field-based workshop designed to evaluate and refine the sedimentology/stratigraphy portion of the StraboSpot digital data management system. Eleven academics attended the workshop, representing a spectrum of career levels and specialties. The participants teach classes in sedimentology and conduct sedimentary research, but had not used any previous digital mobile apps in the field. The field component focused on learning the basic functionality of the StraboSpot app as a method of collecting digital data in the field. On the first day, teams of 2-3 participants measured a stratigraphic section in a highly visited locality of the well-studied Book Cliffs of central Utah. Teams saw how the vocabulary and spot functionality worked to collect sedimentary field data and to generate stratigraphic columns. The second day was spent measuring a more complex mixed carbonate-clastic sequence in the San Rafael Swell (Utah). Half of the third day was spent in discussion on major issues with workflow/vocabulary and getting feedback on how to simplify and streamline descriptive data collection functions (stratal attributes), and reviewing the more challenging interpretation functions (processes, depositional environments, and architecture). A major discussion point was how best to handle data collection and stratigraphic plotting of 'interbedded' intervals. As a result of the workshop, we streamlined workflow options and refined portions of the vocabulary. This field testing followed up on two previous workshops that solicited expert advice to develop the program categories and basic vocabulary for the sedimentary community. Overall, workshop participants were enthusiastic about the potential of digital data systems, and the ability to link annotated photographs and sketches to georeferenced localities. All participants indicated they were inclined to use StraboSpot in both teaching and research, particularly with versatile and customizable options.

StraboSpot for Sedimentary Geology: Encouraging Community Involvement and Feedback Through Workshops and Field Trips




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Encouraging Community Involvement and Feedback Through Workshops and Field Trips
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¹ University of Utah, ² University of Kansas, ³ Pennsylvania State University, ⁴ University of Wisconsin



Concept

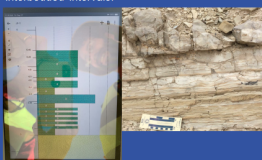
The StraboSpot digital application is an integrated field geology data system, now developed for the sedimentary geology community. The application (app) allows users to: collect field data, create and interpret stratigraphic columns, search and query data, and store and share data.



OPEN

Workshop Results


The field component focused on learning the basic functionality of the StraboSpot app as a method of collecting digital data in the field. On the first day, teams of 2-3 participants measured a stratigraphic section in a highly visited locality of the well-studied Book Cliffs of central Utah. Teams saw how the vocabulary and spot functionality worked to collect sedimentary field data and to generate stratigraphic columns. The second day was spent measuring a more complex mixed carbonate-elastic sequence in the San Rafael Swell (Utah). Half of the third day was spent in discussion on major issues with workflow/vocabulary and getting feedback on how to simplify and streamline descriptive data collection functions (stratal attributes), and reviewing the more challenging interpretation functions (processes, depositional environments, and architecture). A major discussion point was how best to handle data collection and stratigraphic plotting of 'interbedded' intervals.



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Advice & Feedback


As a result of the workshop, we streamlined workflow options and refined portions of the vocabulary. This field testing followed up on two previous workshops that solicited expert advice to develop the program categories and basic vocabulary for the sedimentary community.



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Participants


An NSF EarthCube-funded project encouraged sedimentary community input and supported a field-based workshop designed to evaluate and refine the sedimentology/stratigraphy portion of the StraboSpot digital data management system. Eleven academics attended the workshop, representing a spectrum of career levels and specialties. The participants teach classes in sedimentology and conduct sedimentary research, but had not used any previous digital mobile apps in the field.



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Conclusions

Overall, workshop participants were enthusiastic about the potential of digital data systems, and the ability to link annotated photographs and sketches to georeferenced localities. All participants indicated they were inclined to use StraboSpot in both teaching and research, particularly with versatile and customizable options.



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PRESENTED AT:



EarthCube

**2020 EarthCube Annual Meeting
Virtual – June 18, 2020**

CONCEPT

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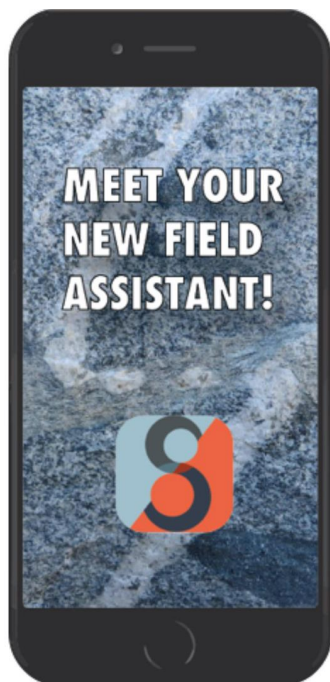


Fig 1 A. StraboSpot is a digital app that works on mobile devices. B. It is often challenging to see the screens of mobile devices in the field, hence the umbrella for some shade.

PARTICIPANTS

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Fig. 2 Workshop participants test the sedimentary portions of StraboSpot in the field where there are exceptional exposures of Cretaceous wave-dominated delta deposits, Gentile Wash, Utah.

WORKSHOP RESULTS

The field component focused on learning the basic functionality of the StraboSpot app as a method of collecting digital data in the field. On the first day, teams of 2-3 participants measured a stratigraphic section in a highly visited locality of the well-studied Book Cliffs of central Utah. Teams saw how the vocabulary and spot functionality worked to collect sedimentary field data and to generate stratigraphic columns. The second day was spent measuring a more complex mixed carbonate-clastic sequence in the San Rafael Swell (Utah). Half of the third day was spent in discussion on major issues with workflow/vocabulary and getting feedback on how to simplify and streamline descriptive data collection functions (stratal attributes), and reviewing the more challenging interpretation functions (processes, depositional environments, and architecture). A major discussion point was how best to handle data collection and stratigraphic plotting of ‘interbedded’ intervals.

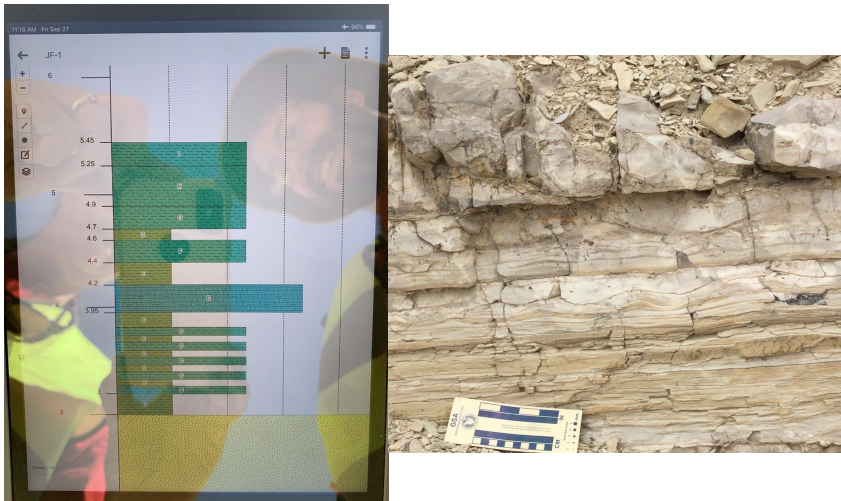


Fig. 3 A. View of the drafted section on the StraboSpot app with reflection of the users. B. Sedimentary structures in another locality of mixed carbonates and siliciclastics.



Fig. 4 Outcrop road-cut exposure of the mixed carbonate and siliciclastics of the Jurassic Carmel Formation, Justensen Flats, San Rafael Swell, Utah.

ADVICE & FEEDBACK

As a result of the workshop, we streamlined workflow options and refined portions of the vocabulary.

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Fig. 5 Discussions of how the StraboSpot app worked in the field.

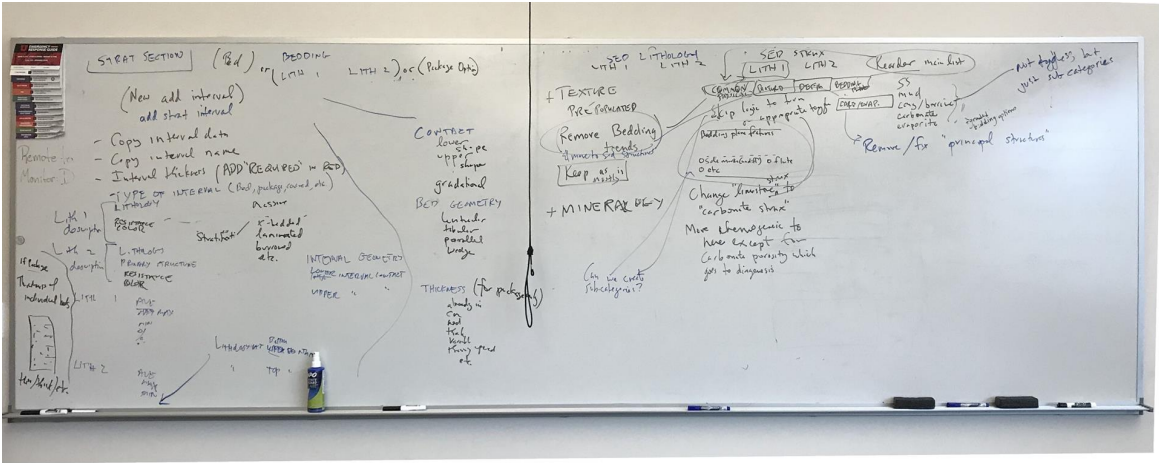


Fig. 6 Diagrams of workflow.

Some of the most important post-survey results were:

- Field experience using Strabo: >75% positive
- Strongest aspects of Strabo: Quick draft section, import photos, georeferenced, sketching, data management & sharing
- Strongest aspects for teaching: Uniform vocabulary, immediate visualization of stratigraphic sections
- Enthusiastic for the potential of Strabo: 100% Yes!

CONCLUSIONS

Overall, workshop participants were enthusiastic about the potential of digital data systems, and the ability to link annotated photographs and sketches to georeferenced localities. All participants indicated they were inclined to use StraboSpot in both teaching and research, particularly with versatile and customizable options.



Fig. 7 Workshop participants responded positively to the potential of the StraboSpot app.

Acknowledgments:

We thank many participants who helped us develop sedimentary vocabulary in workshops leading up to this most recent workshop and field excursion. Support was provided by NSF ICER – 1639682 to Chan, ICER – 1639734 to Kamola and Hajek, and ICER – 1639549 to Tikoff.

ABSTRACT

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