

# Visible Geology - Interactive online geologic block modelling

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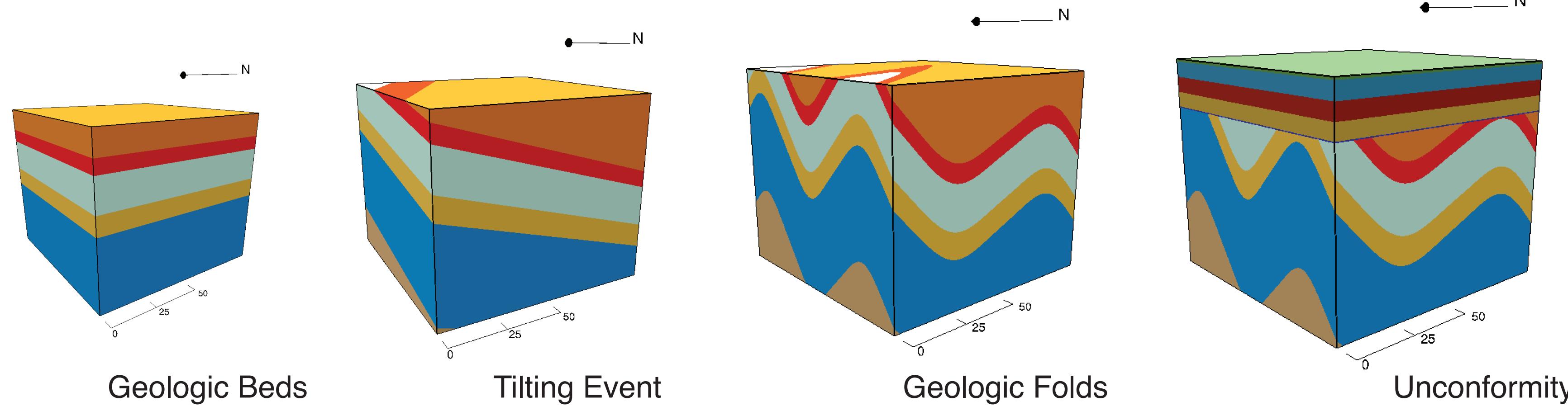


## Introduction

Visible Geology is a web-based tool designed to enhance visualization and understanding of geologic structures and processes through the use of **3D interactive block diagrams**. The program allows users to conceptualize difficult, yet important, geologic principles by creating and interacting with geologic block models.

## Create Your Own Geology

Using an HTML5 web-browser go to <http://app.visiblegeology.com> and start adding geologic beds and events!!



## Class Use

Visible Geology provides a 3D environment where students can create and interrogate their own geologic block models.

### Interactivity

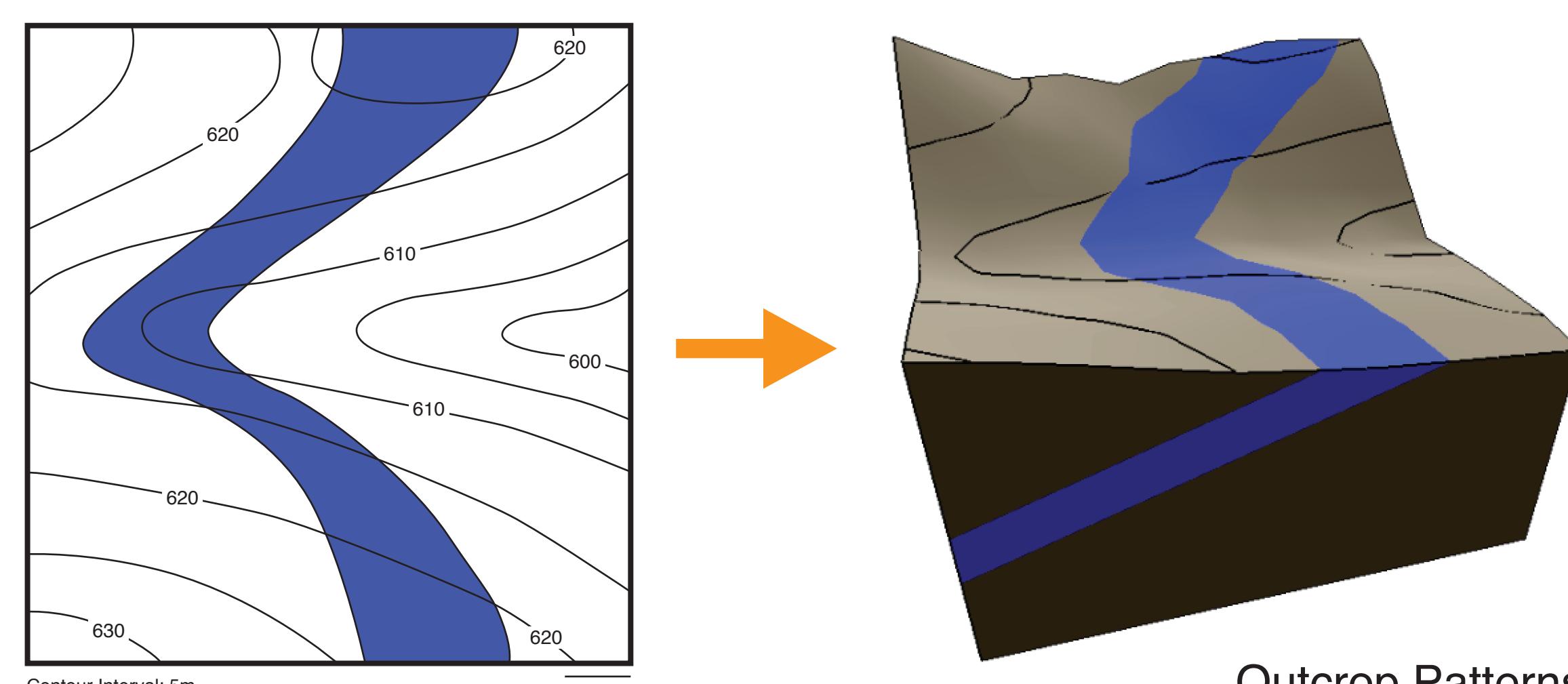
The student is in control of all aspects of the program: from the topography to all of the geologic features.

### Simplicity

Keep the focus on learning geology and away from learning the technology.

### Integration

Easily extend paper based labs and learning assessments with an online modelling component.

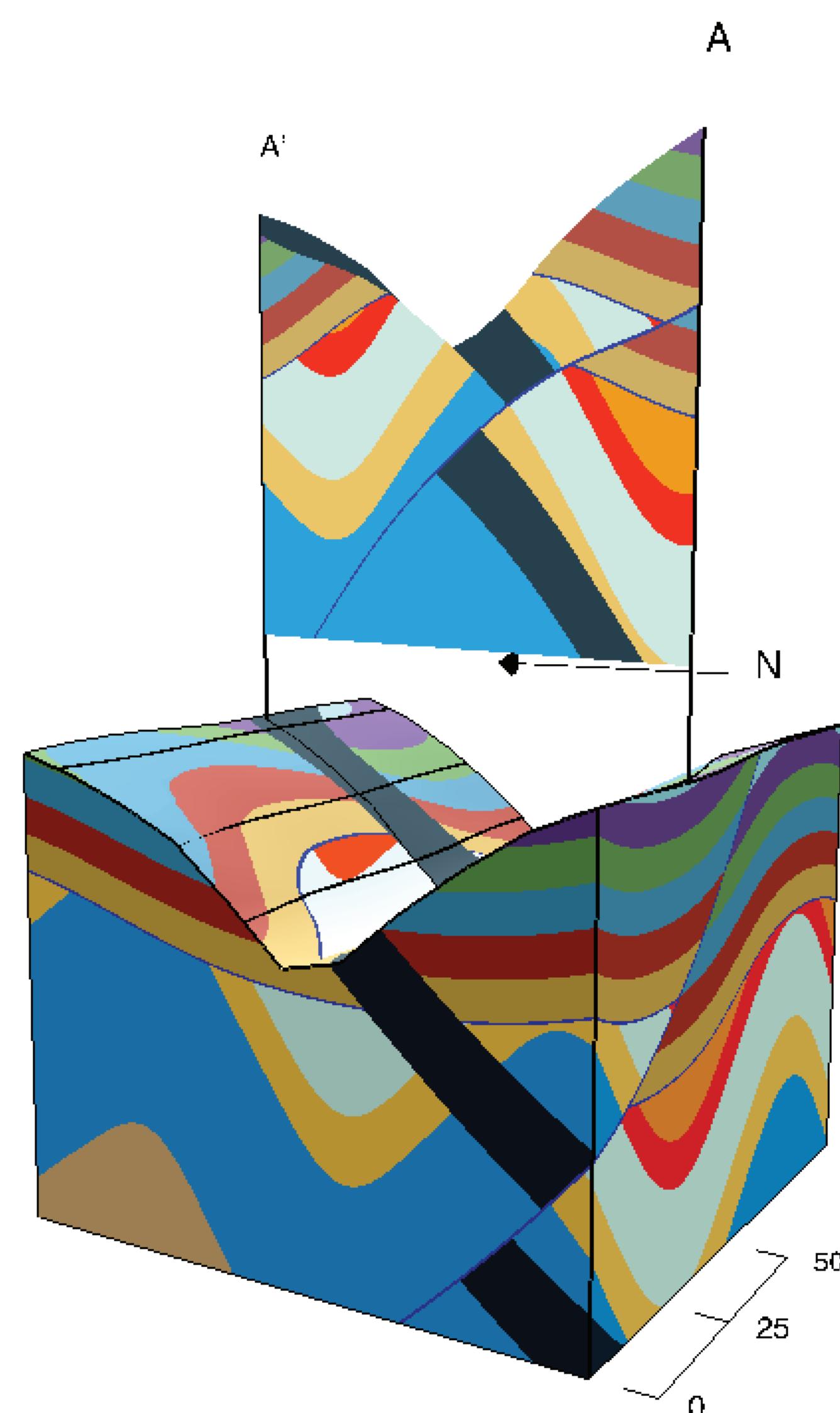
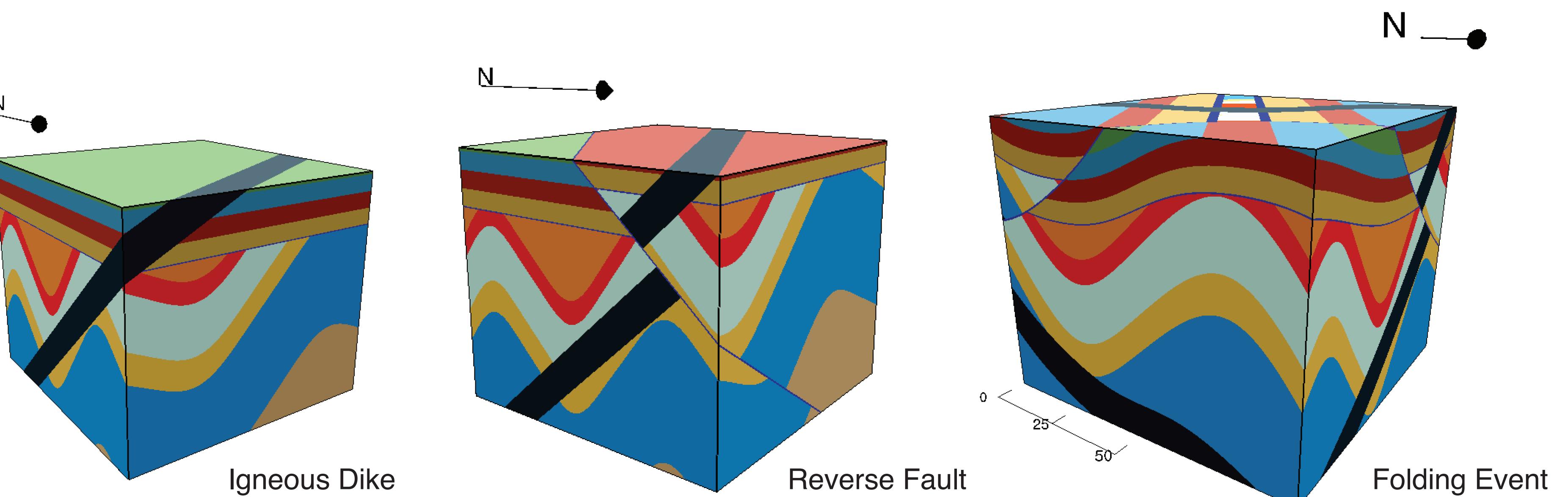


Outcrop Patterns

## Motivation

Traditional assignments in **geologic mapping** have students connect similar geologic units over a terrain to determine how that geologic bed or fold is orientated in 3D. The process is done entirely on paper with a set of memorized steps to determine the orientation.

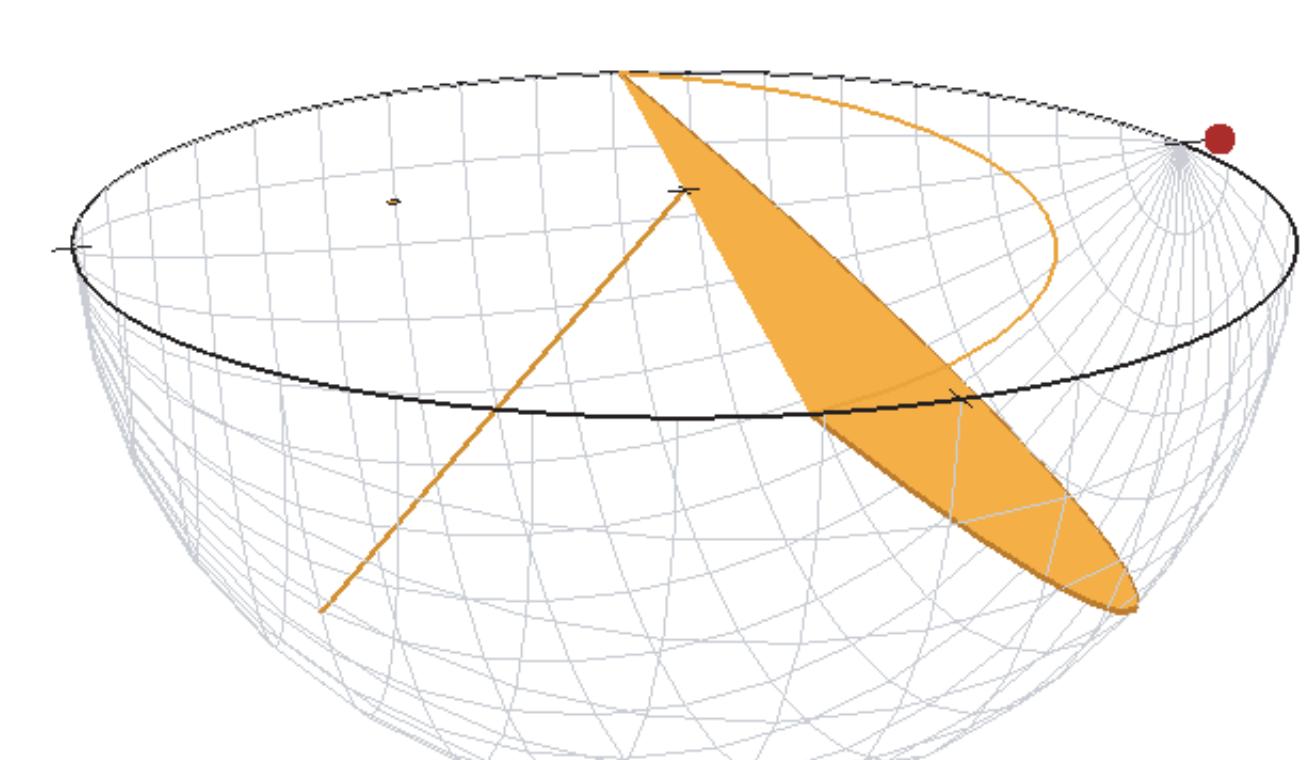
These techniques are divorced from **visualizing the underlying concepts**, and as such, many students have difficulties with these assignments. Visible Geology does not replace these assignments but provides an **interactive and immersive** environment where students can grasp these concepts and ideas in 3D and then approach their mapping assignments with a **conceptual model** rather than rote-memorization.



## Activities

Ideas for **premade activities** and models are provided in a WikiMedia environment:

- Geologic Time
- Contours
- Topography
- Apparent Dip
- Bed Thickness
- Rule of V's
- Fold Classification
- Fault Visualization
- Polyphase Folding
- Stereonet Visualization
- Strike & Dip



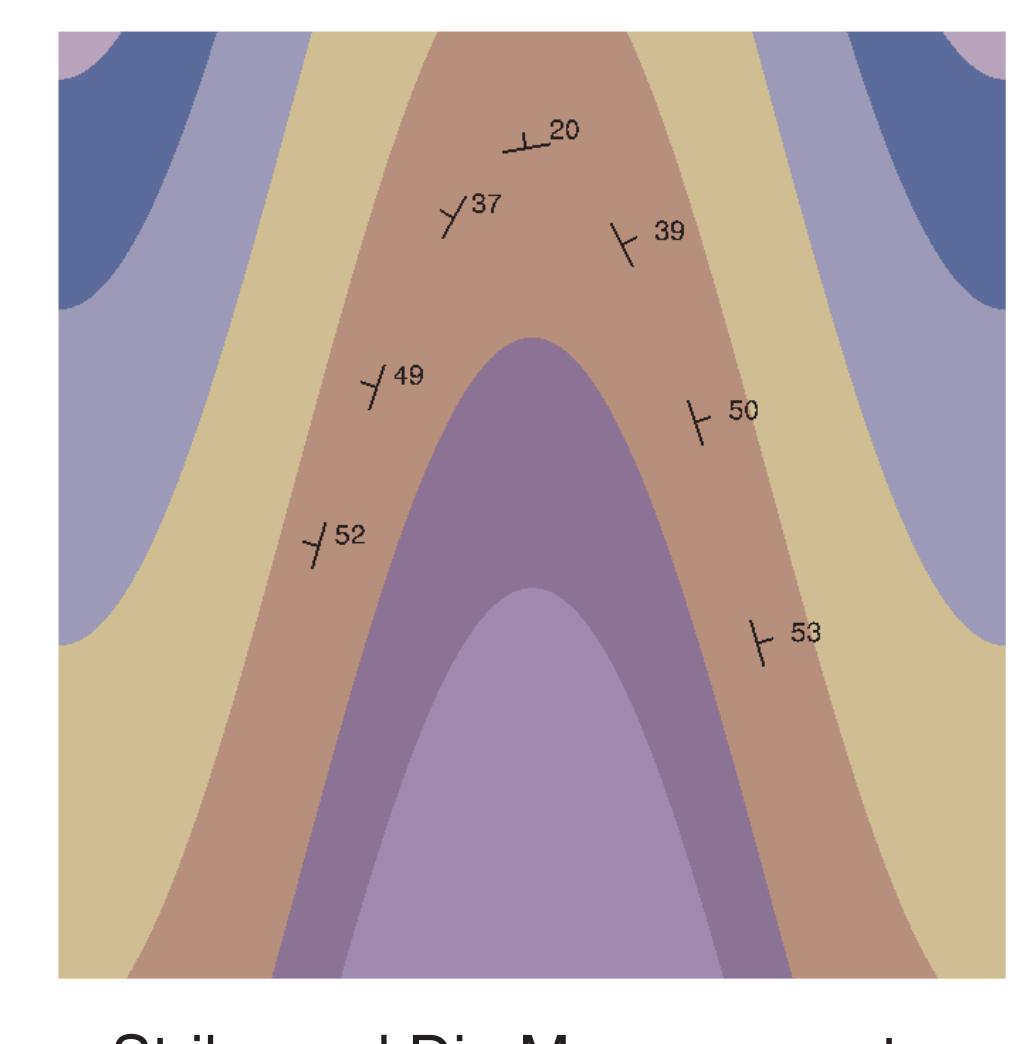
Interactive 3D Stereonet

## Future Work

Focus on support for classroom activities, including **automatic grading** of assignments and organized model submissions.

Deployment to **tablet and mobile** devices with specific modelling activities.

Integrate and **support activities** for courses at UBC and other universities.



Strike and Dip Measurements

## Feedback

*"As a student struggling to grasp 3D structures, this is the greatest tool I have ever seen. I will owe most of my success in my structural geology and mapping courses to this, so thank you."*

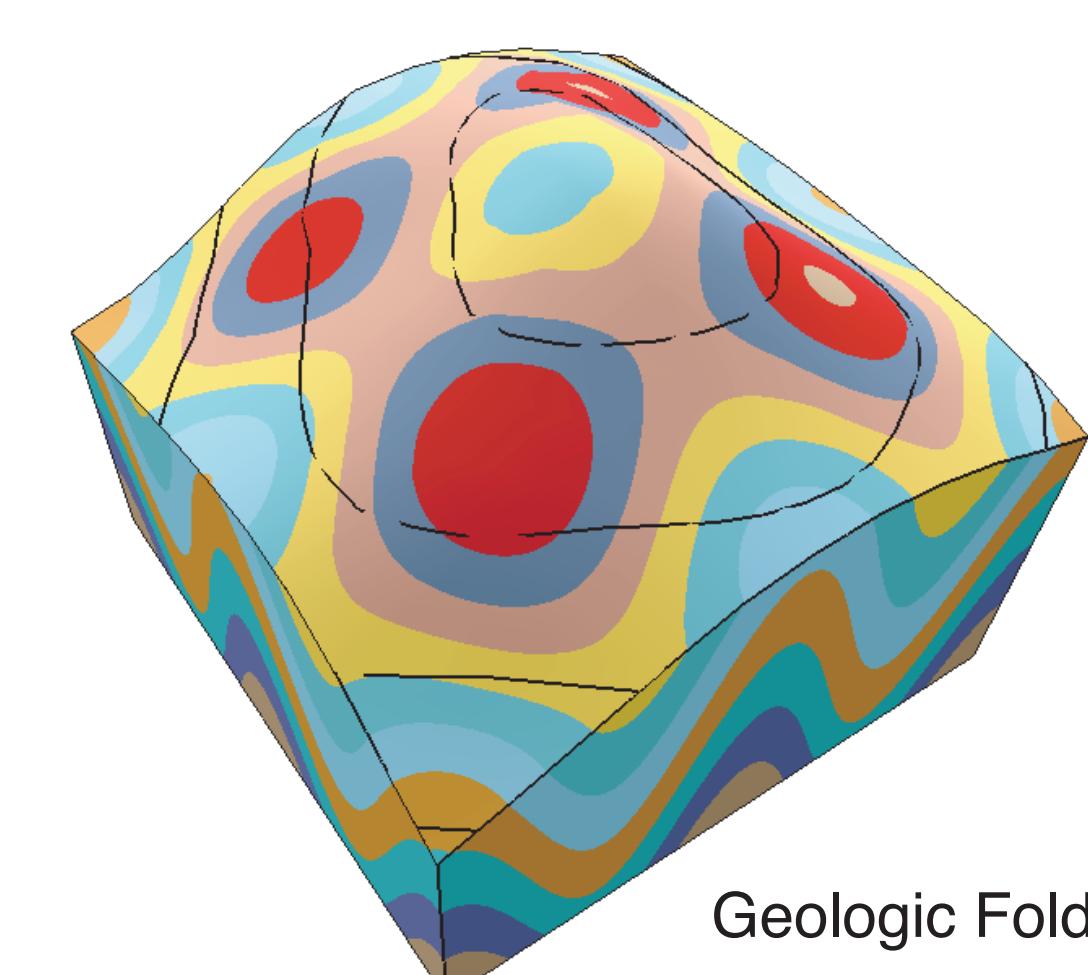
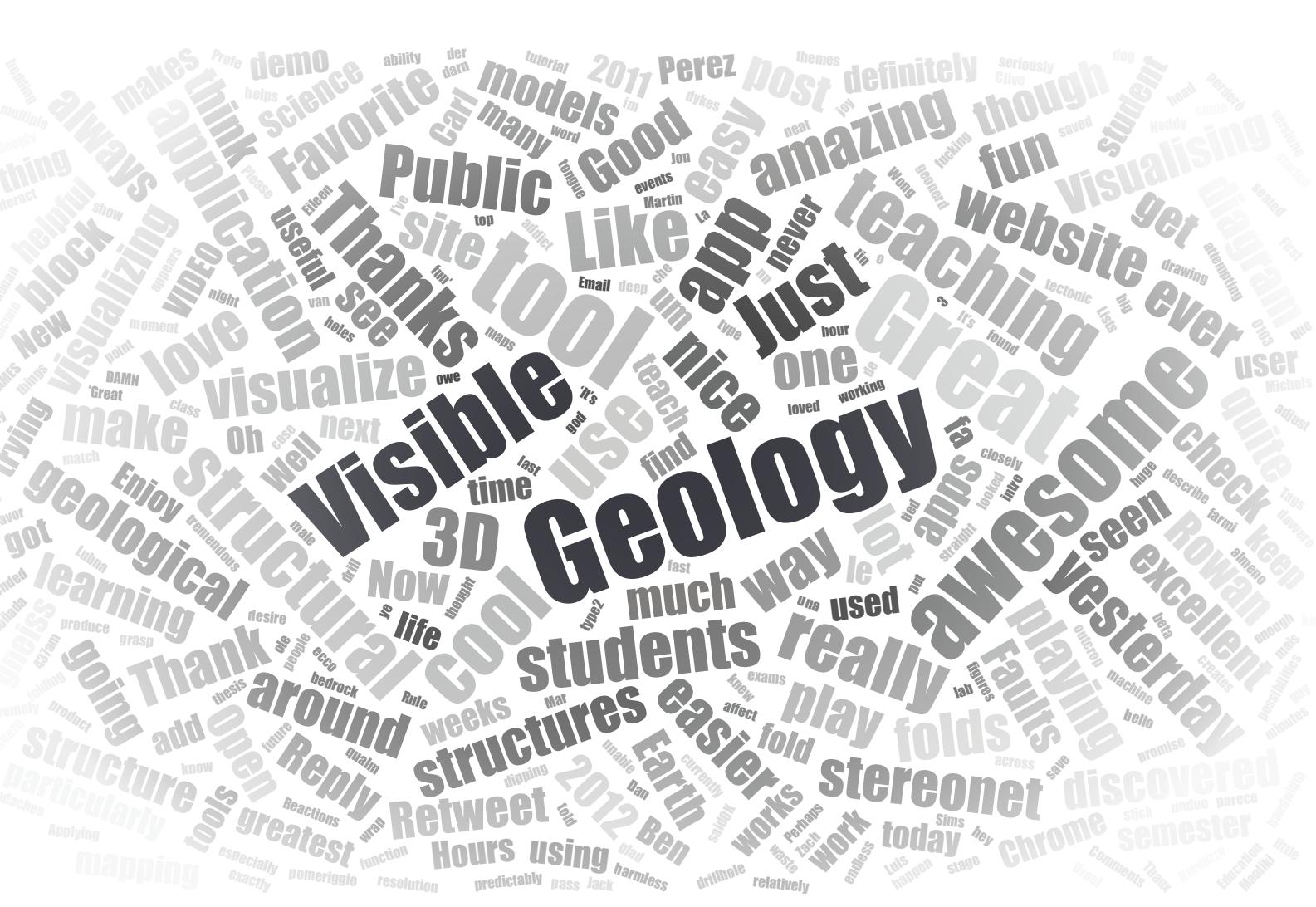
- R. Drysdale

*"A great application I will most definitely use in my teaching."*

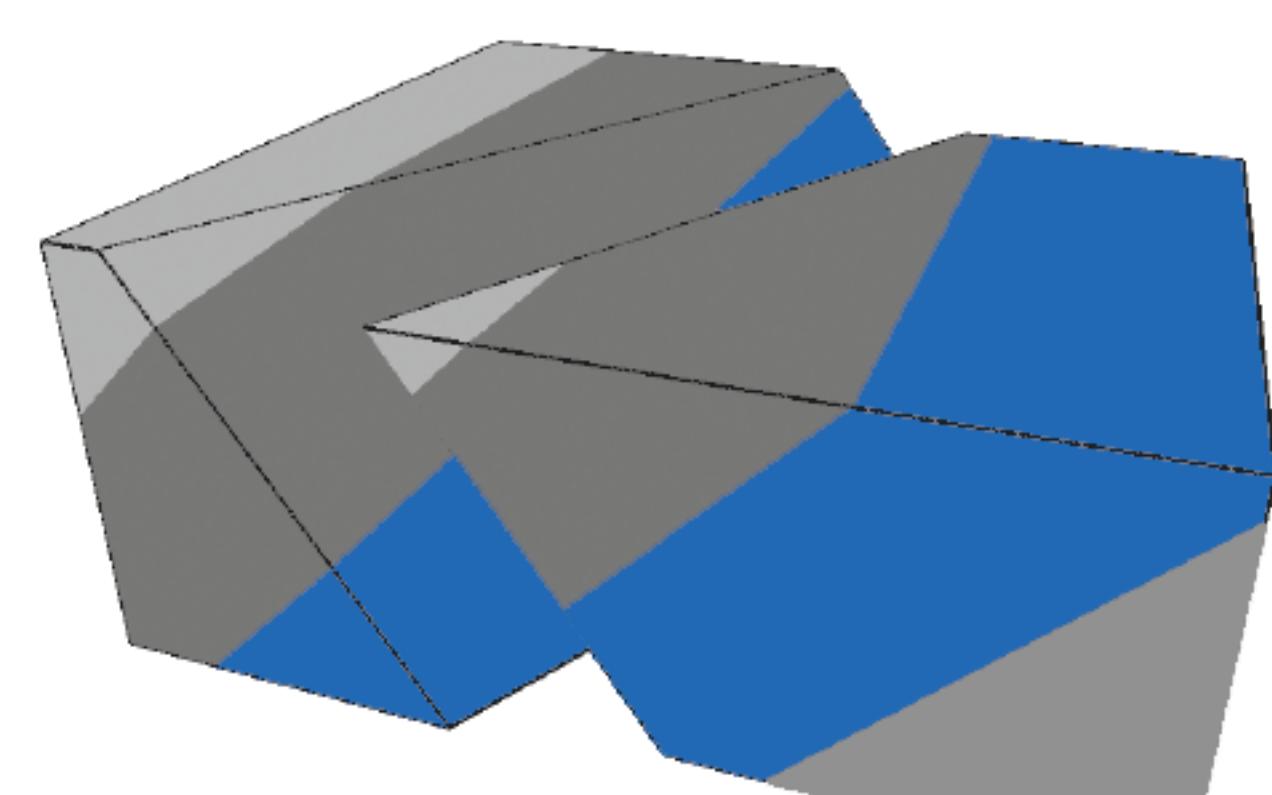
- Dr. P. Rey (Univ. of Sydney)

*"This is awesome! You have exceeded my expectations. This tool has helped me understand stereonets."*

- D. Lindsay



Geologic Folds



Explore Faulting