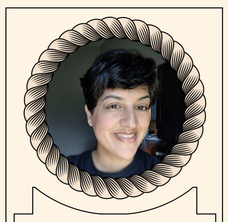
Navigating Rough Waters:

How We Build Psychological Safety on Teams at the USGS



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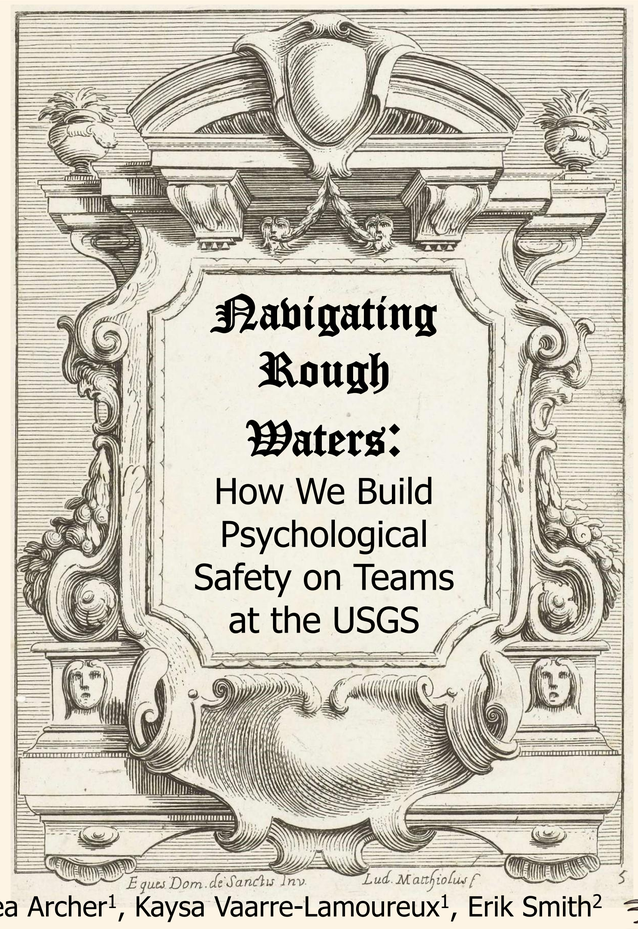
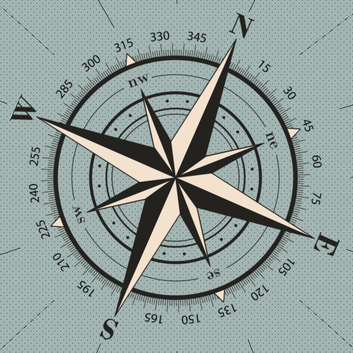




> All knowledge is **embodied**[1], and no knowledge is known unless it is known by **many**.

INTRODUCTION

Modeling teams are usually big groups of people working together to meet a shared goal that is larger than any one person could accomplish alone.

PSYCHOLOGICAL SAFETY ***(n.)*** is a group-level phenomenon where team members believe they can take risks without being shamed by other team members.[2]

For modeling teams to work together effectively, everyone needs to feel safe.

? Why is there a big ship in the middle?

We are using the metaphor of a crew of sailors working together to get from point A to point B.

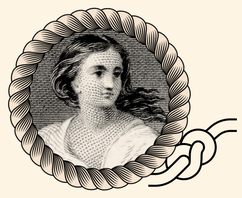
The quadrants introduce the four aspects of phycological safety: learner safety, inclusion safety, contributor safety, and challenger safety with stories.

LEARNER SAFETY

Leonard, a shipmate apprentice training to become a navigator, was eager to prove their capabilities. The day before, the ship's navigator had briefly explained how to use the sextant. Feeling the pressure to demonstrate competence, Leonard hesitated to ask any clarifying questions. The following day, when tasked with navigating on their own, Leonard made a small error, steering the ship slightly off course. This experience taught Leonard a valuable lesson: asking questions early can prevent greater consequences later.

Learner safety is met when team members **are not afraid to be seen trying.**

INCLUSION SAFETY

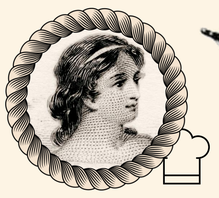


Inclusion safety is met when team members **bring in and consider ideas from outsiders**.

Indra, a new crewmate and former professional rock climber, found it challenging to adjust to maritime culture. Unfamiliar with ship-speak and acronyms, they often avoided participating in team conversations. This left Indra feeling less confident and occasionally unclear about their tasks and roles.

One day, the ship's sails came loose due to strong wind. Drawing on their rock-climbing expertise, Indra showed the first mate a new type of knot, which proved to be significantly stronger. The entire crew adopted the new knot, and Indra's confidence grew alongside their connection with the team.

CONTRIBUTOR SAFETY

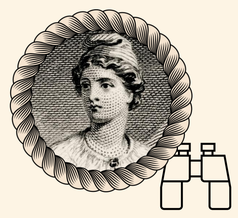


Connie, the ship's sous chef, faced a troubling situation: the crew had been falling ill, likely due to spoiled meat and vegetables. Although hesitant, Connie suggested an id for a new food preservation method. After implementing it, the crew's health and morale improved.

The new method proved to be a long-term success. Through this experience, Connie learned the value of sharing ideas, even when they're not fully developed.

Contributor safety is met when team members **share incomplete work.**

CHALLENGER SAFETY



Charlie, a new crewmate, had just completed their first night in the crow's nest. During their shift, they were certain they had spotted icebergs in the distance. Later, they overheard the first hand mistakenly state that there were no icebergs in the area. Unsure of how to address the mistake, Charlie informs the captain. The captain confirmed the sighting and praised Charlie for their vigilance. Later, the first mate reassured Charlie that they could have approached them as well. This experience helped Charlie gain confidence in communicating concerns with the crew.

Challenger safety is met when team members **critique other's assumptions, work, and results.**

Best practices that require psychological safety:

1) Main branch is protected… and only changed with peer reviewed merge requests (MR).
2) Write good MRs… communicate what you want the reviewer to do.
3) Keep MRs small… so you bring your reviewer along.
4) Think of the end user when designing outputs… it must make sense to a person.
5) Communicate key points in your metadata… don't leave things for others to figure out.
6) Fail fast and use release tags to version your code.
7) Comment code and document functions.

1. Roos, Johan, & Von Krogh, Greg. (2016). "Organizational epistemology" (Book). *Springer*. ISBN: ISBN-0-312-12498-8
2. Edmondson, Amy (1999). "Psychological Safety and Learning Behavior in Work Teams" (PDF). *Administrative Science Quarterly*, ***44*** (2): 350-383. doi:10.2307/2666999. JSTOR 2666999. S2CID 32633178.
3. Drawings by Ellie White and Althea Archer.

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