



# Student involvement in the Geospace Environment Modeling (GEM) workshop

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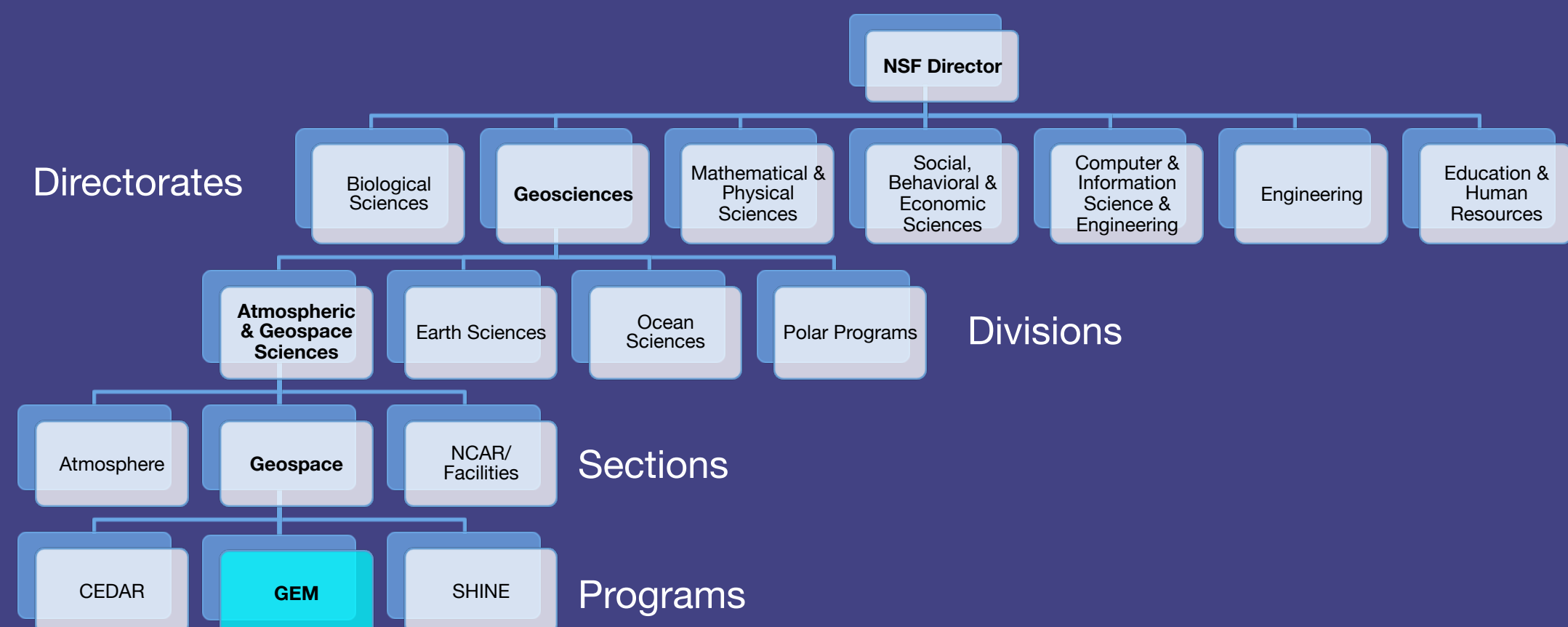


### Abstract:

The Geospace Environment Modeling (GEM) summer workshop is a unique venue for students to begin to integrate into the magnetospheric community. GEM, funded by the NSF, allows students to present their research in a collaborative atmosphere and to engage with senior scientists as peers. This builds confidence in the students, while also allowing them to share ideas and strengthen their research. Each year, the workshop starts with “Student Day”, organized by the two elected Student Representatives to the GEM Steering Committee. During “Student Day”, senior students present tutorials on the basics and emerging research focuses of magnetospheric physics. These tutorials strive to put the upcoming week of talks and posters in context while providing and overarching base understanding for the magnetospheric system. Starting the week with student tutorials and icebreaker activities makes students more comfortable with asking questions and sets the tone the workshop’s informal, student-friendly, and discussion-oriented style.

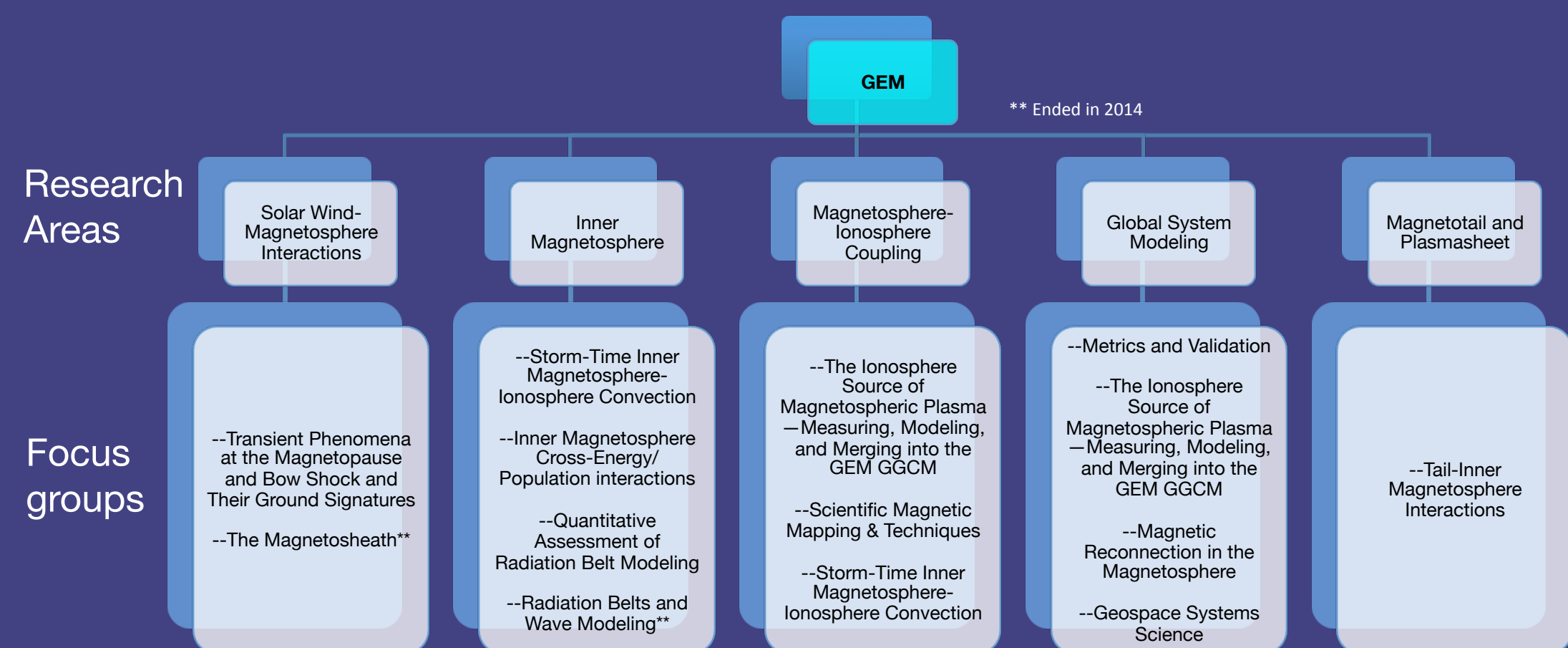
### What is GEM:

As part of the National Science Foundation (NSF), the community-initiated Geospace Environment Modeling (GEM) research program is focused on coordinating basic research to study the geospace environment ranging from ionosphere/magnetosphere interactions to solar wind/magnetosphere interactions. Each summer, GEM holds a week long student focused workshop for graduate students in the GEM community.



### Workshop Philosophy:

The GEM summer workshop is intended to serve as a series of discussion-based focus groups, each designed to address a specific problem in our collective understanding and modeling capabilities of the magnetosphere. In these focus groups, the community hears from senior scientists, early career scientists, and graduate students, offering a unique experience for graduate students to become integrated within the general scientific community while simultaneously expanding their knowledge base.



### Student Day Objectives:

The objectives of Student Day, which precedes the week-long workshop, is to allow senior students to present background information for the conference to less experienced students. This provides the base context for the week of discussions and also accustoms students to the more informal and friendly culture of the workshop. During these presentations students are encouraged to ask questions and engage in dialog about the different phenomena presented in the focus groups.

### Student Day Structure:

Morning	Student Breakfast
	What is GEM? (by GEM student representatives)
	Icebreaker Activity
	Background presentations (by senior students)
Afternoon	Student Lunch
	Introduction to focus groups (by senior students)
	Welcome to GEM (by senior scientist)
	GEM Student Representative election
Evening	Student Dinner
	GEM student night out



### Student Day Highlights and Hurdles:

A primary hurdle for us to overcome with respect to the GEM Student Day is maintaining students engagement. We strongly encourage the student presenters to structure their talks to be more discussion-based, interactive presentations, rather than AGU-style lectures. Each student in attendance is asked to fill out a feedback form for each tutorial, rating it on both the content and the presentation. The data from the forms are tallied and an award is given to for the Best Student Tutorial. This provides an outlet for constructive criticism that both provides an incentive for the tutorial presenters and forces the audience to remain active listeners.

Additionally, we have to ensure that the tutorials maintain a delicate balance of introductory material for students who are new to GEM, while still providing enough depth and variety to keep the interest of veteran students. Surveys taken by students at the end of Student Day indicate that most students find the level of the talks to be appropriate.

The informality and social emphasis of Student Day has shown to be very effective at motivating students to engage with students from other institutions, allowing them to build friendships and collaborations with their peers.



### Workshop Student Involvement:

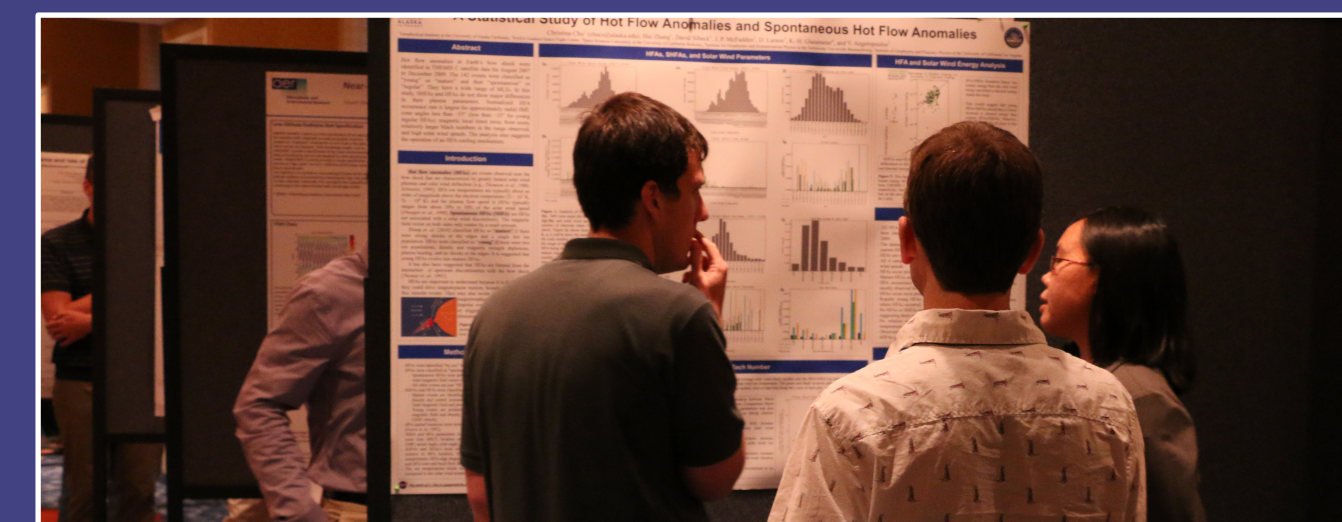
The workshop gives students many chances to become involved with and integrated into the broader GEM community through sharing research and networking. GEM also encourages students to volunteer with various aspects of the workshop.

Presenting research and collaborating with peers and senior scientists:

- Two poster sessions
- Research talks
- Discussion in focus group sessions
- Discussions during session breaks and lunches
- Joint GEM-CEDAR weekend

Networking opportunities:

- Welcome reception
- Workshop breakfasts
- Mid-session breaks
- Break-out lunches
- Banquet



### Workshop Highlights and Hurdles:

The workshop at large faces the difficulty of trying to remain discussion-based, with more open-ended presentations and encouraged dialog, while accommodating a rapidly-growing number of participants and presenters. To accomplish this, some of the newer focus groups have put more emphasis on limiting the number of presentations to allow more time for discussion. However, this has been a point of difficulty for some of the larger focus groups.

A highlight of the GEM workshop is its emphasis on maintaining student involvement. As the workshop grows, student talks and posters have been given priority over those of senior scientists. Also, last year marked the second annual student poster competition and the introduction of prizes for the winners.

Maintaining a high level of student attendance is also a priority for GEM. To help facilitate this, student travel support is given to almost all students each year. Last year, over 60 students had their airfare and lodging supported.



### Acknowledgements:

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