



# Nebulae: Deep-Space Computing Clouds

August 26 - 30, 2019  
Overview Schedule

**Monday, August 26, 2019**  
**Lees-Kubota Lecture Hall, Guggenheim Building - Caltech**

**A World of Data – The Scale of Space Science Data Processing**  
Introductory Lectures - Open to all interested students, researchers and faculty

Time	Event	Speaker
8:15 - 8:45	Coffee and Refreshments	
8:45 - 9:00	Logistics / Introduction	Michele Judd Team Lead
9:00 - 9:45	Big Planets, Big Questions, Big Data: Planetary Remote Sensing Data Challenges	Valerie Fox
9:45 - 10:30	Reinventing the Role of Computing in Space	Rich Doyle
10:30 - 11:00	Break	
11:00 - 11:45	Today's Deep Space Communications System: The Earth-Based Elements	Les Deutsch
11:45 - 12:30	Future Computing Architectures for Signal Processing, AI, and Autonomy for Space Vehicles	Jason Tichy and Lukas Mandrake
12:30 - 1:30	Short Course Ends: Informal Lunch is provided outside the Guggenheim Building	

**Invitation-Only Workshop Begins**  
**Keck Center - Think Tank, Room 155**

1:30 - 1:45	Walk to Keck Center, pick up badge and welcome packet, find seat in the Think Tank	
1:45 - 2:30	Workshop Logistics and Introduction to KISS	Michele Judd
2:30 - 3:00	Participant Introductions	Michele Judd
3:00 - 3:30	Study vision and goals for this workshop	Team Leads
3:30 - 4:00	Break	
4:00 - 5:00	Finalize study vision and workshop goals via plenary discussion	Team Leads
5:15 - 5:30	Solicitation of Lightning Talks	Team Leads
5:30 - 6:00	Pack up and walk to the Athenaeum	All
6:00	Dinner on the lawn at the Athenaeum	

## Tuesday, August 27, 2019 - Keck Center - Think Tank, Room 155

Time	Event	Speaker
8:00 - 8:30	Institute Opens - FREE THINK TIME	
8:30 - 9:00	Coffee and Refreshments at Keck Center	
9:00 - 9:15	Logistics and Team Lead Goals for the Day	Michele Judd and Team Leads
9:15 - 9:45	Orbital Insight - High Level Architectural Overview / What Can Be Done Now / Top Challenges Ahead	Guest Speaker: James Crawford
9:45 - 10:30	Introduction to Imaging Spectroscopy Measurement and Analysis (includes 15 min Q&A)	David Thompson
10:30 - 11:00	Break	
11:00 - 11:15	Selection of Breakout Groups and Topics	All
11:15 - 12:30	Breakout Groups Meet	Groups
12:30 - 2:00	Group Picture and Lunch at the Athenaeum	
2:00 - 2:45	Report outs from breakout groups (15 mins each)	Groups
2:45 - 3:15	Lightning Talks (2)	TBD by participants
3:15 - 3:30	Selection of Breakout Groups and Topics	All
3:30 - 4:00	Break	
4:00 - 5:30	Breakout Groups Meet	Groups
5:30 - 7:30	POSTER-ish SESSION and Informal food truck dinner at the Keck Center (dinner starts at 6:30 pm)	

## Wednesday, August 28, 2019 - Keck Center - Think Tank, Room 155

Time	Event	Speaker
8:00 - 8:30	Institute Opens - FREE THINK TIME	
8:30 - 9:00	Coffee and Refreshments at Keck Center	
9:00 - 9:15	Logistics and Team Lead Goals for the Day	Michele Judd and Team Leads
9:15 - 9:45	Team Pulse - One good thing you have taken out of the workshop already, one thing you want by Friday	Michele Judd
9:45 - 10:15	Report Outs from Breakout Groups (10 mins each)	Groups
10:15 - 10:30	Lightning talk (1)	TBD by participants
10:30 - 11:00	Break	
11:00 - 11:45	Machine Learning and Artificial Intelligence for Science Data	Ashish Mahabal
11:45 - 12:00	Lightning talk (1)	TBD by participants
12:00 - 12:30	Plenary Discussion, Selection of Breakout Groups and Topics	All
12:30 - 2:00	Lunch at the Athenaeum	
2:00 - 3:30	Breakout Groups Meet	All
3:45 - 4:00	Break	
4:00 - 4:30	Report outs from breakout groups (10 mins each)	Groups
4:30 - 4:45	Selection of Breakout Topics / Groups	All
4:45 - 6:00	Breakout Groups Meet	All
6:00	Workshop Day #3 Ends	All
6:15	OPTIONAL: No-Host Dinner in Pasadena (KISS pays for grad students and postdocs)	

**Thursday, August 29, 2019 - Keck Center - Think Tank, Room 155**

<b>Time</b>	<b>Event</b>	<b>Speaker</b>
8:00 - 8:30	Institute Opens - FREE THINK TIME	
8:30 - 9:00	Coffee and Refreshments at Keck Center	
9:00 - 9:15	Logistics and Team Lead Goals for the Day	Michele Judd and Team Leads
9:15 - 9:45	Report outs from breakout groups (10 mins each)	All
9:45 - 10:30	Lightning talks (3)	Speaker Name or TBD by participants
10:30 - 11:00	Break	
11:00 - 11:15	Selection of Breakout Topics / Groups	All
11:15 - 12:30	Breakout Groups Meet	All
12:30 - 2:00	Lunch on your own	
2:00 - 3:00	Breakout Groups Meet (continued)	Groups
3:00 - 3:30	Report outs from breakout groups (10 mins each)	Groups
3:30 - 4:00	Break	
4:00 - 4:30	Group Discussion and Selection of Breakout Topics / Groups	All
4:30 - 6:00	Breakout Groups Meet	All
6:00	Workshop Day #4 Ends	All
6:15	Dinner at the Athenaeum (with spouses and significant others)	

**Friday, August 30, 2019- Keck Center - Think Tank, Room 155**

<b>Time</b>	<b>Event</b>	<b>Speaker</b>
8:00 - 8:30	Institute Opens - FREE THINK TIME	
8:30 - 9:00	Coffee and Refreshments at Keck Center	
9:00 - 9:15	Logistics and Team Lead Goals for the Day	Michele Judd and Team Leads
9:15 - 10:00	Breakout Groups Report Out	All
10:00 - 10:30	Open Discussion of Breakout Group Recommendations and Group Feedback	All
10:30 - 11:00	Break	
11:00 - 12:30	Possible Break Outs to determine next steps during study session before workshop #2?	All
12:30 - 1:30	Lunch at the Institute	
1:30 - 2:00	Breakout Groups Report Out	All
2:00 - 3:30	Summary of the Week's Accomplishment and Goals	All
3:30 - 4:00	Break	
4:00 - 4:45	Final Study Activities and Assignments - Group Discussion	All
4:45 - 5:00	Workshop Closeout	Michele Judd
5:00	Workshop Concludes	