So You Were Chosen for NITARP

Questions we had:

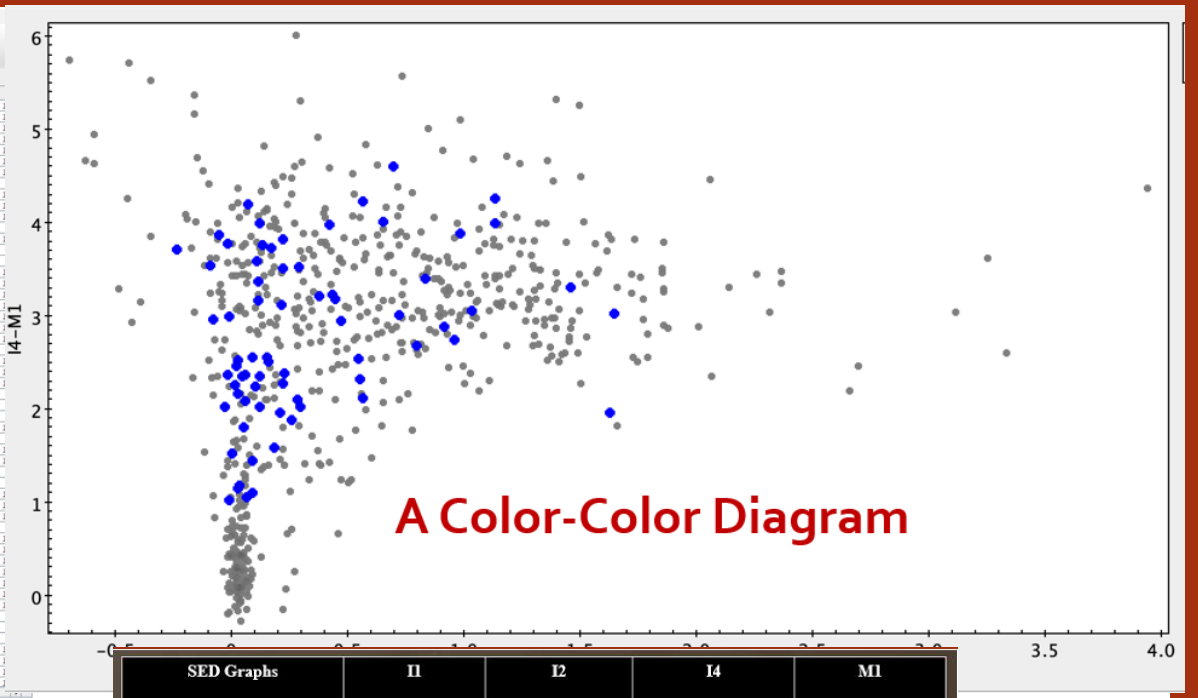
1) What kinds of research can a person like me do?
2) What will our year together look like?
3) What about the students?
4) What about our trips?
5) What about our workload?
6) What are some benefits of NITARP? (Why am I doing this??)
7) Umm, advice???

1. What Kinds of Research Can a Person Like Me Do?

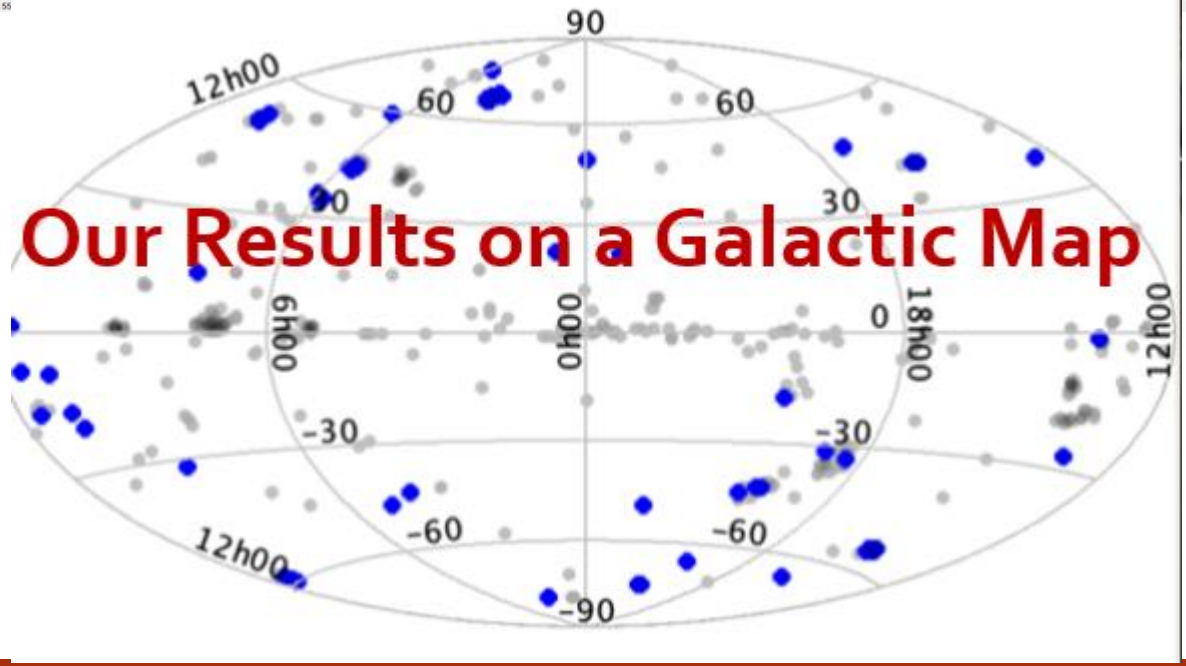
- Jeff's Project (fIRes w/Varoujan, 2022) – Finding evidence of rocky planets around red dwarf stars using the technique of infrared excess
- Ben's Project (Young Stellar Objects 'YSOs', with Luisa during Covid) - Two years of virtual work, posters and AAS meetings… Evidence for young stellar objects in the Nebular Stream of the Spider Nebula (IC417).

First Cut of Our Data

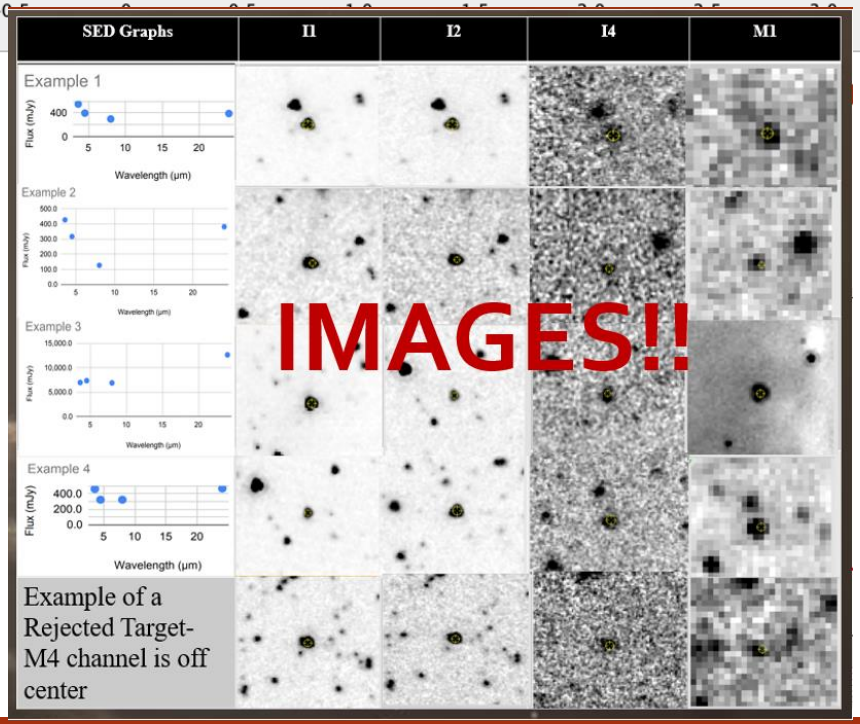
A Color-Color Diagram

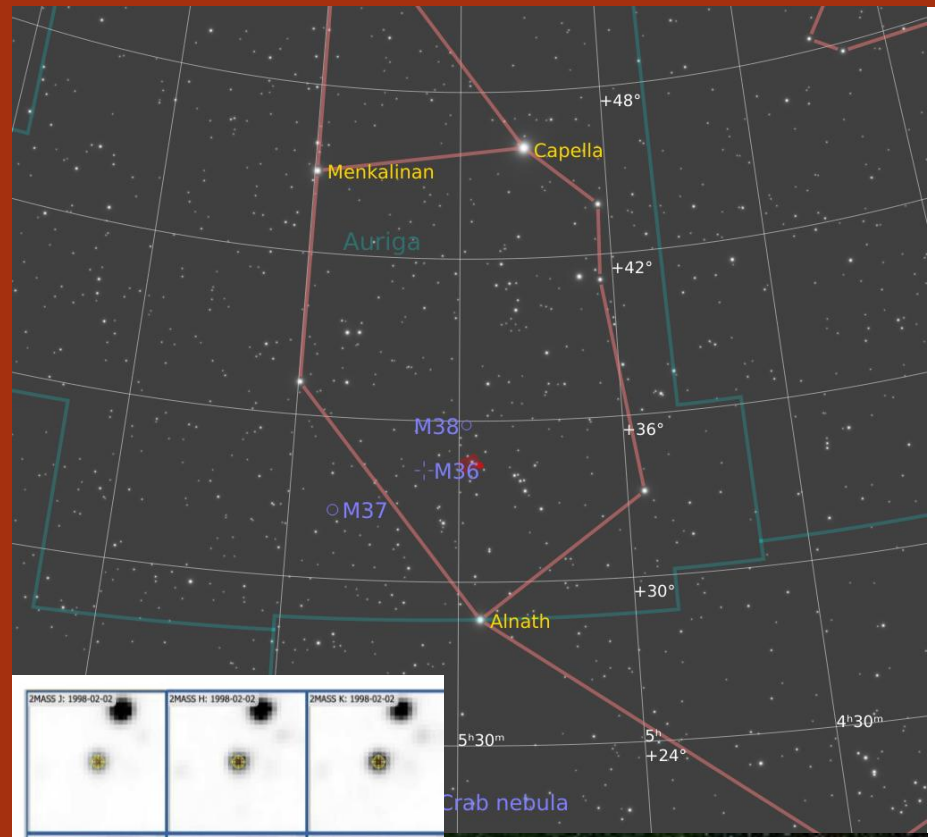


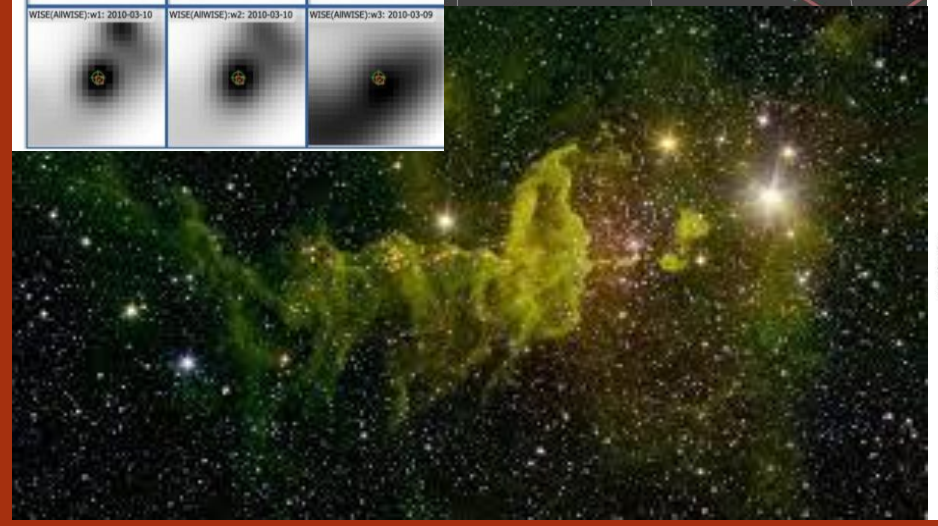
Our Results on a Galactic Map

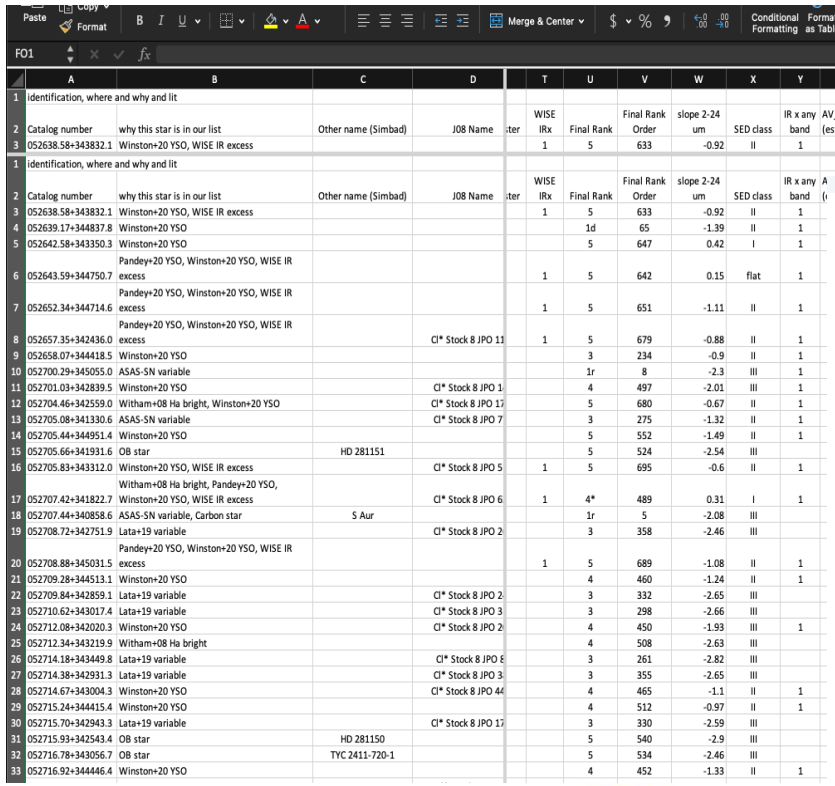


IMAGES!!









	A	B	C	D	T	U	V	W	X	Y	Z	AA	AB	AC	AD	AE	AF	AG	AH	AI	AJ	AK	AL	AM	AN
1	identification, where and why and lit																		optical data						
2	Catalog number	why this star is in our list	Other name (Simbad)	J08 Name	WISE IRx	Final Rank	Final Rank Order	slope 2-24 um	SED class	IR x any band	AV_JHK (est)	Chi (i1-i2)	Chi(r-Ha)	large IRX flag	JHKx flag	HAX flag	BlueX flag	num points SED	UMAG	BMAG	VMAG	ICMAG	PANGMAG	PANGMERR	PANRMAG
3	052638.58+343832.1	Winston+20 YSO, WISE IR excess			1	5	633	-0.92	II	1	0.1	6.4	14.3	1	1	1		30					20.40	0.069	18.90
1	identification, where and why and lit																		optical data						
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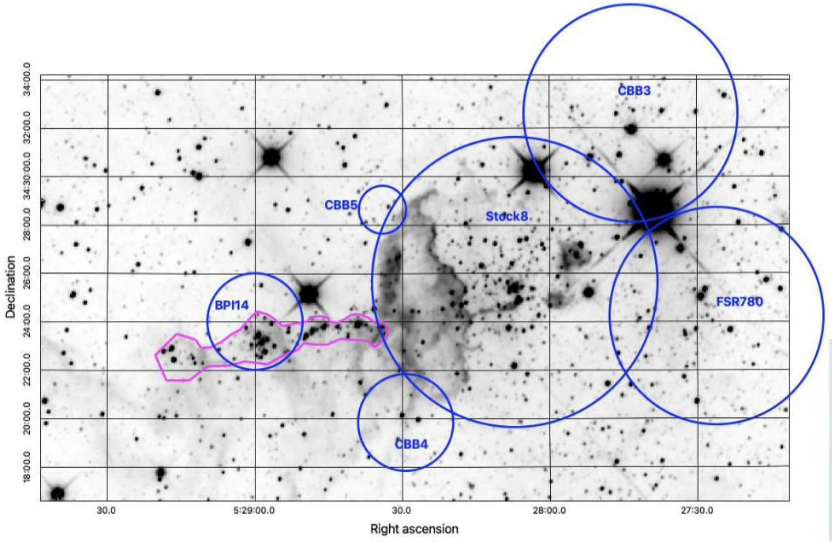
3	052638.58+343832.1	Winston+20 YSO, WISE IR excess			1	5	633	-0.92	II	1															
4	052639.17+344837.8	Winston+20 YSO				1d	65	-1.39	II	1															
5	052642.58+343350.3	Winston+20 YSO				5	647	0.42	I	1															
6	052643.59+344750.7	Pandey+20 YSO, Winston+20 YSO, WISE IR excess			1	5	642	0.15	flat	1															
7	052652.34+344714.6	Pandey+20 YSO, Winston+20 YSO, WISE IR excess			1	5	651	-1.11	II	1															
8	052657.35+342436.0	Pandey+20 YSO, Winston+20 YSO, WISE IR excess		Cl* Stock 8 JPO 11	1	5	679	-0.88	II	1															
9	052658.07+344418.5	Winston+20 YSO				3	234	-0.9	II	1															
10	052700.29+345055.0	ASAS-SN variable				1r	8	-2.3	III	1															
11	052701.03+342839.5	Winston+20 YSO		Cl* Stock 8 JPO 1		4	497	-2.01	III	1															
12	052704.46+342559.0	Witham+08 Ha bright, Winston+20 YSO		Cl* Stock 8 JPO 17		5	680	-0.67	II	1															
13	052705.08+341330.6	ASAS-SN variable		Cl* Stock 8 JPO 7		3	275	-1.32	II	1															
14	052705.44+344951.4	Winston+20 YSO				5	552	-1.49	II	1															
15	052705.66+341931.6	OB star	HD 281151			5	524	-2.54	III																
16	052705.83+343312.0	Winston+20 YSO, WISE IR excess		Cl* Stock 8 JPO 5	1	5	695	-0.6	II	1															
17	052707.42+341822.7	Witham+08 Ha bright, Pandey+20 YSO, Winston+20 YSO, WISE IR excess		Cl* Stock 8 JPO 6	1	4*	489	0.31	I	1															
18	052707.44+340858.6	ASAS-SN variable, Carbon star	S Aur			1r	5	-2.08	III																
19	052708.72+342751.9	Lata+19 variable		Cl* Stock 8 JPO 2		3	358	-2.46	III																
20	052708.88+345031.5	Pandey+20 YSO, Winston+20 YSO, WISE IR excess			1	5	689	-1.08	II	1															
21	052709.28+344513.1	Winston+20 YSO				4	460	-1.24	II	1															
22	052709.84+342859.1	Lata+19 variable		Cl* Stock 8 JPO 2		3	332	-2.65	III																
23	052710.62+343017.4	Lata+19 variable		Cl* Stock 8 JPO 3		3	298	-2.66	III																
24	052712.08+342020.3	Winston+20 YSO		Cl* Stock 8 JPO 2		4	450	-1.93	III	1															
25	052712.34+343219.9	Witham+08 Ha bright				4	508	-2.63	III																
26	052714.18+343449.8	Lata+19 variable		Cl* Stock 8 JPO 8		3	261	-2.82	III																
27	052714.38+342931.3	Lata+19 variable		Cl* Stock 8 JPO 3		3	355	-2.65	III																
28	052714.67+343004.3	Winston+20 YSO		Cl* Stock 8 JPO 44		4	465	-1.1	II	1															
29	052715.24+344415.4	Winston+20 YSO				4	512	-0.97	II	1															
30	052715.70+342943.3	Lata+19 variable		Cl* Stock 8 JPO 17		3	330	-2.59	III																
31	052715.93+342543.4	OB star	HD 281150			5	540	-2.9	III																
32	052716.78+343056.7	OB star	TYC 2411-720-1			5	534	-2.46	III																
33	052716.92+344446.4	Winston+20 YSO				4	452	-1.33	II	1															



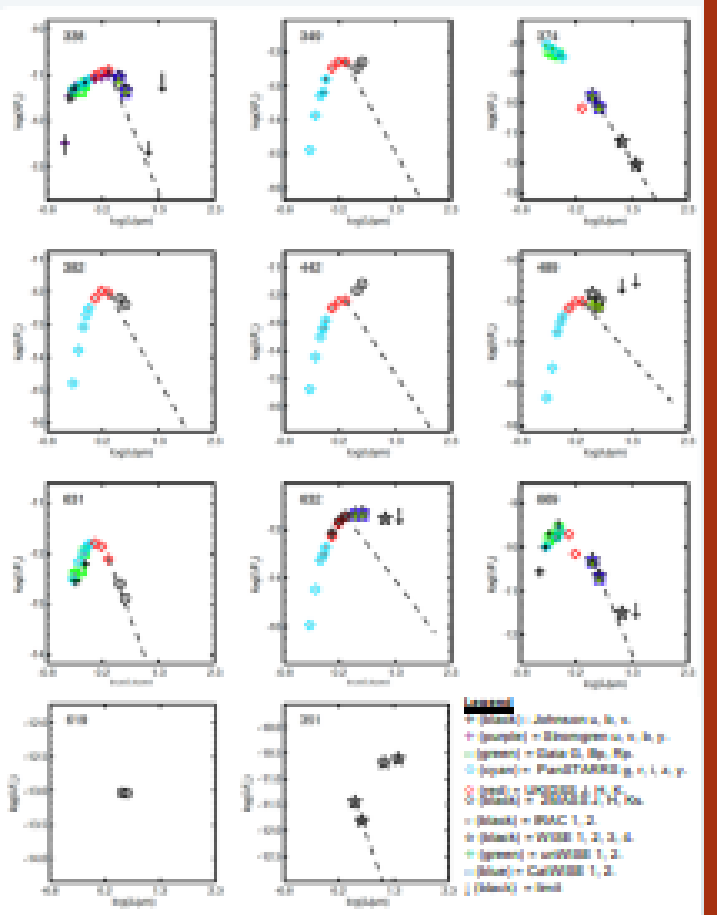
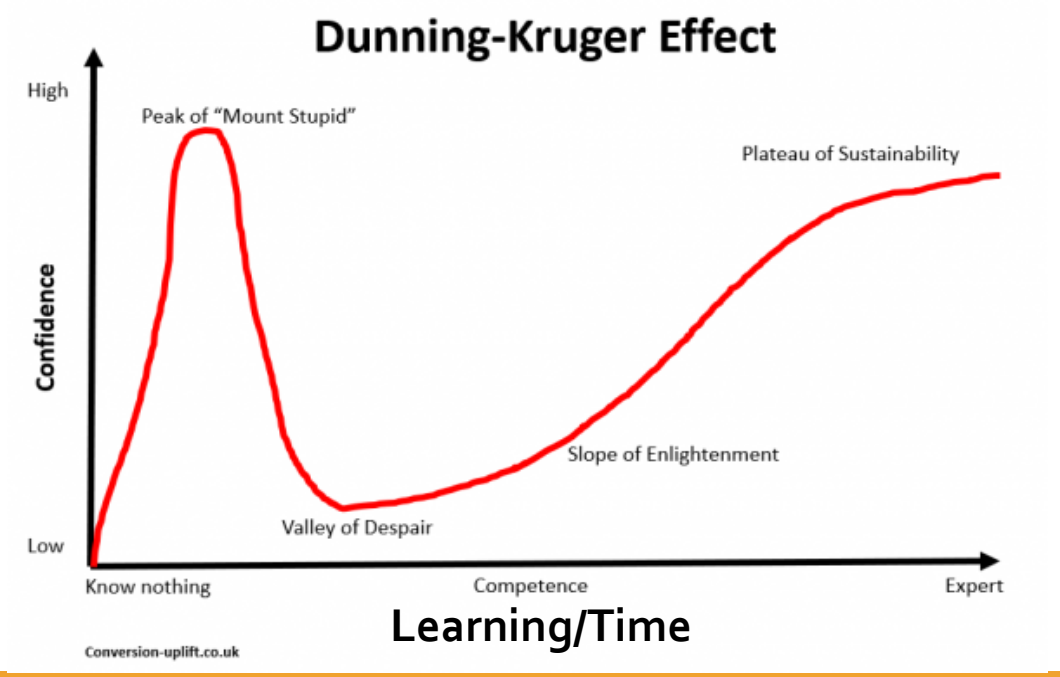


Figure 4. SEDs for selected YSO candidates from the NS. Symbols defined on the left. Dashed line is a Rayleigh-Jeans line extended from K_s to guide the eye as to where the photosphere is expected to be, assuming that K_s is unaffected by dust. Plots are log λ F_λ in cgs units (ergs/s /cm^2) against log λ in microns.

2. What Will Our Year Together Look Like?

I. Learning (January – Summer, and really always)

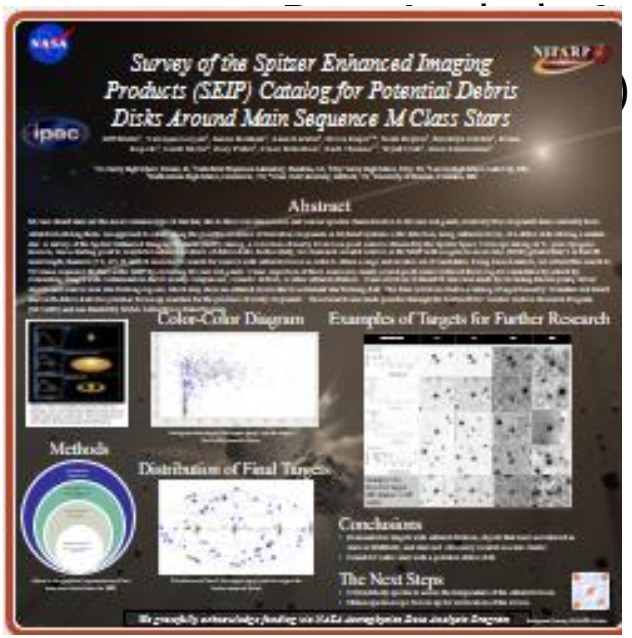
- Weekly Zoom/Webex/"telecon" meetings
- Learn (actively celebrate wonder and curiosity, actively challenge confusion)
- Become confused, frustrated, etc.
- Learn some more
- Learn some more
- Write the group proposal
- Onboard students as you choose them

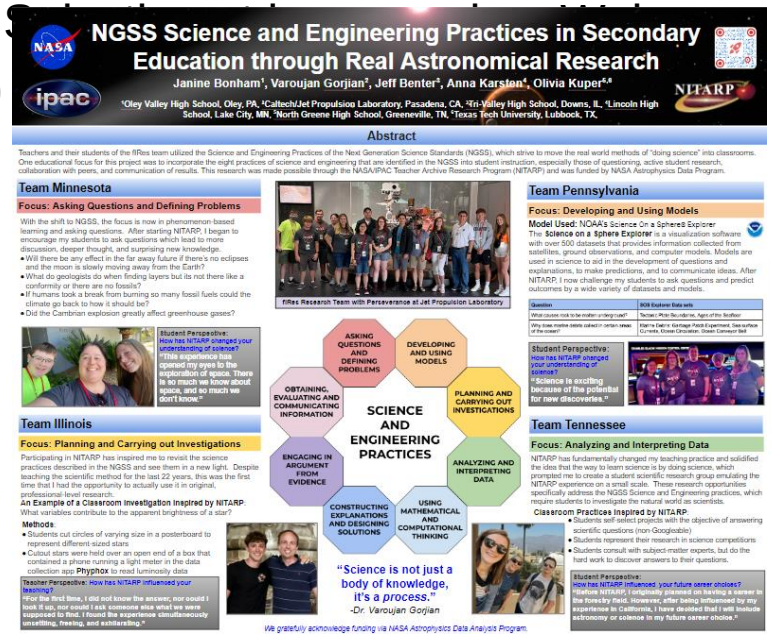


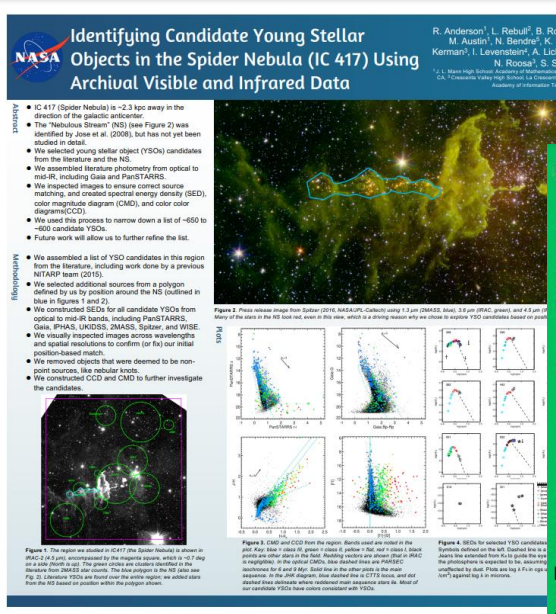
2. What Will Our Year Together Look Like?

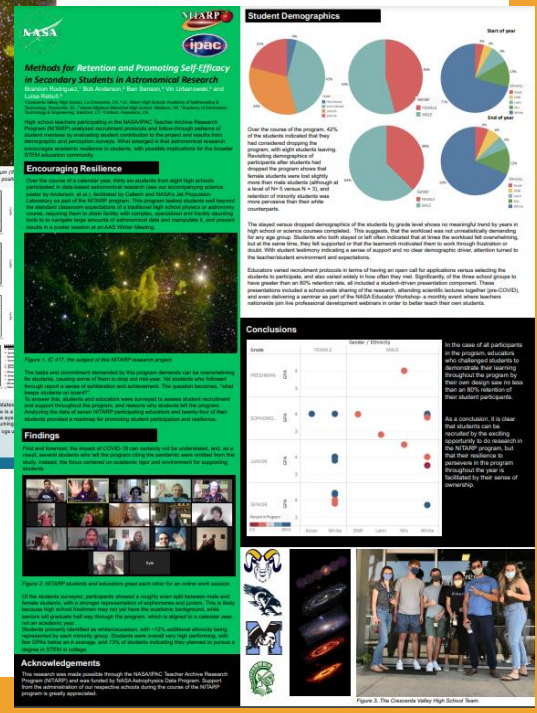
III. Data Analysis (Summer – December)

Create… "the poster(s)"









2. What Will Our Year Together Look Like?

IV. Sharing Our Results at the 245th AAS (January '25 in DC)

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3. What About the Students?

Who and How Many to Pick?

- NITARP pays up to 2 (can bring up to 4). None is an option, too. Can involve as many as you want back home.
- Selection Process? Up to you! Participation? Essays? Interviews? Cage matches?
- Same kids at Cali and AAS (strongly recommended)
- Seniors discouraged
- Be comfortable: Like them!

Student Responsibilities

- Learn the science (from you and hopefully attend at least some telecons or watch the archived ones)
- Do the science: analyze the data & give input
- Present the science poster (with you) at the AAS

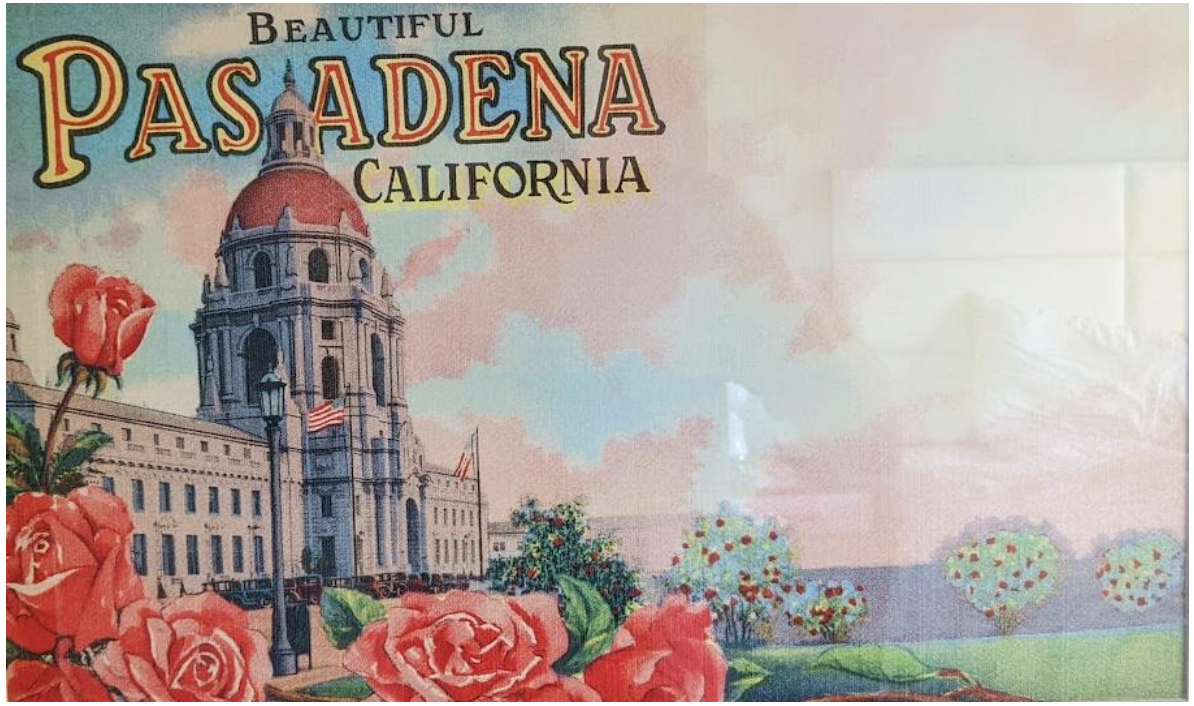
Advice to You as Their Teacher

- Enjoy the experience of learning with them
- Be prepared to lean on them: you'll help each other!

4. What About the Trips?

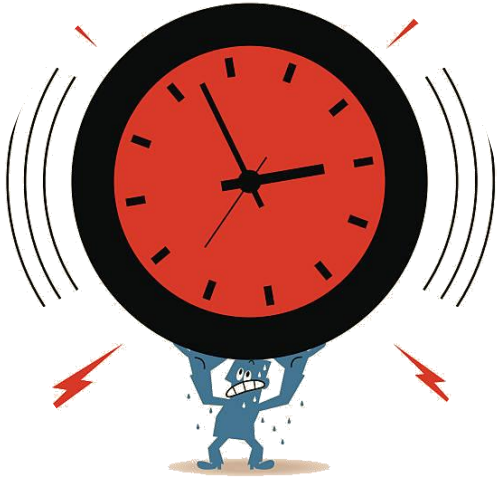
- **Trip 1: You're On It!**
- **Trip 2: Training in Cali (Five Days and Nights in Sunny Pasadena)**

  Trip Extracurricular Possibilities:
  - Old Pasadena
  - Santa Monica Pier
  - Griffith Park & Observatory
  - Hollywood Boulevard
  - Dodgers Game
  - Mt. Wilson Observatory
- **Trip 3: Present in DC**



BUT ABOUT THAT WORK....

5. What About the Workload?



- Weekly “Zoom” meetings ~hour
- Homework: Background reading and writing and analysis
- Some parts more work-intensive than others. These parts include the initial learning, proposal writing, data analysis, and poster prep
- What kind of work?
  - Reading & learning
  - Writing proposals
  - Organizing, Processing and Analyzing Data: using tools (IPAC IRSA viewer, Topcat, & Excel) to handle and calculate numerical data and visually check sources

6. What Are Some Benefits?

- Learn cool astro stuff
- Build your Grit and persistence
- Meet people
- Learn about astro opportunities
- Step out of your comfort zone and try something new
- Do authentic research
- Great experiences
- Become famous back home

7. Ummmm..... Advice???

- Ask questions… more than once… actively challenge confusion and lack of clarity
- Be open to the experience
- Be human
- COMMUNICATE, Communicate, communicate