
INTEGRATED DESIGN CENTER

1
00:00:00,167 --> 00:00:02,302
[music]

2
00:00:02,302 --> 00:00:05,506
The Planetary Science
Winter School is a program for

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00:00:05,506 --> 00:00:08,442
early career scientists and
postdocs like myself to come

4
00:00:08,442 --> 00:00:13,881
together for the first time and
see how a mission goes from just

5
00:00:13,881 --> 00:00:15,949
a science concept to something
that could

6
00:00:15,949 --> 00:00:17,985
actually fly in space one day.

7
00:00:17,985 --> 00:00:20,320
The Winter School is a great
hands-on experience, because it

8
00:00:20,320 --> 00:00:24,458
gives us the ability to actually
get involved with the design of

9
00:00:24,458 --> 00:00:27,327
a real mission that
might actually fly some day.

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00:00:27,327 --> 00:00:30,597
We actually are trying to
develop an instrument concept

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00:00:30,597 --> 00:00:33,700

for a client, and we
figure out, "Is it feasible?

12
00:00:33,700 --> 00:00:35,035
How much does it cost?

13
00:00:35,035 --> 00:00:36,103
How much does it weigh?"

14
00:00:36,103 --> 00:00:40,374
And so we have things like
volume, mass, and power to deal

15
00:00:40,374 --> 00:00:42,809
with for this entire week.

16
00:00:42,809 --> 00:00:45,646
My role in the Planetary Science
Winter School was working with

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00:00:45,646 --> 00:00:47,347
the thermal systems leads.

18
00:00:47,347 --> 00:00:50,450
We looked at our instrument
and we have to determine how to

19
00:00:50,450 --> 00:00:53,420
handle things related to
temperature stability,

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00:00:53,420 --> 00:00:56,189
gradients, but also the
environment that you're in.

21
00:00:56,189 --> 00:00:59,226
My role was flight
software and electrical.

22

00:00:59,226 --> 00:01:01,762
I got to team up with two
mentors in my case so I think

23
00:01:01,762 --> 00:01:02,930
I'm double lucky.

24
00:01:02,930 --> 00:01:06,066
I had no idea, since I'm a
scientist I've never really done

25
00:01:06,066 --> 00:01:09,469
anything on the electrical back
end of something scientific, so

26
00:01:09,469 --> 00:01:11,338
this is a really great
opportunity for me to see

27
00:01:11,338 --> 00:01:14,308
everything that
goes on in design.

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00:01:14,308 --> 00:01:17,811
My role in the Winter School was
basically figuring out, "What is

29
00:01:17,811 --> 00:01:19,880
the design of the
detector that we want?"

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00:01:19,880 --> 00:01:21,748
We learned on the first day of
the study that there was going

31
00:01:21,748 --> 00:01:26,386
to be a second type of detector,
and so what I was fascinated by

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00:01:26,386 --> 00:01:29,156

was just watching people
roll with that new information.

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00:01:29,156 --> 00:01:32,426
So there's a lot of organized
chaos that comes together, where

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00:01:32,426 --> 00:01:35,963
people sort of don't really know
what they're doing at first.

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00:01:35,963 --> 00:01:38,732
I think that's something you see
in science in general, as you

36
00:01:38,732 --> 00:01:39,766
start to do more work you
realize

37
00:01:39,766 --> 00:01:41,368
how much goes into things.

38
00:01:41,368 --> 00:01:43,804
We just sort of run around
talking to each other, saying,

39
00:01:43,804 --> 00:01:44,938
"I have a problem with this.

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00:01:44,938 --> 00:01:46,306
How do we solve this?"

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00:01:46,306 --> 00:01:47,874
And together we figure it out.

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00:01:47,874 --> 00:01:51,478
[music]

43
00:01:51,478 --> 00:01:54,514

The engineering part of
a mission really in some ways is

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00:01:54,514 --> 00:01:57,551
the controlling part of what
type of science you get to do,

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00:01:57,551 --> 00:01:59,553
and it's incredibly important
for scientists

46
00:01:59,553 --> 00:02:00,921
to understand that.

47
00:02:00,921 --> 00:02:03,590
Now I've seen what it takes to
develop these instruments from

48
00:02:03,590 --> 00:02:06,626
the engineering side, and so in
the future when I come back on

49
00:02:06,626 --> 00:02:09,529
the customer side where I have
an instrument that I want to

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00:02:09,529 --> 00:02:14,801
have built by the IDL lab, I'll
understand what information the

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00:02:14,801 --> 00:02:18,505
engineering team needs in
order to do that effectively.

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00:02:18,505 --> 00:02:21,208
So I think one of the next steps
in my career, in the next five

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00:02:21,208 --> 00:02:23,877
or ten years, is to actually

become an instrument scientist.

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00:02:23,877 --> 00:02:26,813
The only way to really start
that process of learning how to

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00:02:26,813 --> 00:02:29,516
do those things is something
like this, an opportunity like

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00:02:29,516 --> 00:02:31,685
the Planetary
Science Winter School.

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00:02:31,685 --> 00:02:33,954
When you're thinking about
scientific topics, it's really

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00:02:33,954 --> 00:02:37,958
thinking in terms of angels on
pinheads, where you have this

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00:02:37,958 --> 00:02:41,428
concept that's very high-level
and that isn't necessarily

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00:02:41,428 --> 00:02:44,331
well-formulated in terms
of a plan to get data.

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00:02:44,331 --> 00:02:47,134
And I think the Planetary
Science Winter School helps you

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00:02:47,134 --> 00:02:50,137
take the science that's in your
mind and try to apply it to the

63
00:02:50,137 --> 00:02:52,139
real world, to

something that's more tangible.