
NASA
NASA

1
00:00:03,516 --> 00:01:23,936
[ Music ]

2
00:01:24,436 --> 00:01:27,466
>> They have uncaged
the, the telescope

3
00:01:27,666 --> 00:01:29,176
and they're going
to acquire target.

4
00:01:29,606 --> 00:01:32,616
>> My students are
10- and 11-year-olds,

5
00:01:33,216 --> 00:01:37,866
so some of their questions,
well first their, the questions

6
00:01:37,866 --> 00:01:40,236
that they wanted to know
was about, you know,

7
00:01:40,236 --> 00:01:45,656
extraterrestrial life, and to
what extent, you know, we were,

8
00:01:45,816 --> 00:01:50,216
we were going to be gathering
information about that.

9
00:01:50,306 --> 00:01:52,166
And while it's not the
same, I don't think

10
00:01:52,166 --> 00:01:55,256
that this is what they
had in mind when, when,

11

00:01:55,256 --> 00:01:57,936
when they asked this question,
I think one of the things

12
00:01:57,936 --> 00:02:01,006
that is very interesting is
tonight's mission we're looking

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00:02:01,006 --> 00:02:01,936
at star formation.

14
00:02:01,936 --> 00:02:05,706
>> So these are just raw frames
as they come off the camera.

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00:02:05,916 --> 00:02:08,506
>> And so it's not
the type of life

16
00:02:08,506 --> 00:02:11,346
that they're thinking
about, but it is, in a way,

17
00:02:11,346 --> 00:02:14,816
this idea of the origins,
right, of something.

18
00:02:16,016 --> 00:02:18,546
>> So these are, these
are now process frames

19
00:02:18,696 --> 00:02:21,626
that really show the background

20
00:02:21,836 --> 00:02:24,826
and the actual astronomical
sources.

21
00:02:25,596 --> 00:02:27,386
I think the science

on this target is,

22
00:02:27,466 --> 00:02:32,596
is that these are stars that
are really literally just

23
00:02:32,596 --> 00:02:36,486
at the early parts of formation,
and so they're still collapsing

24
00:02:36,486 --> 00:02:40,166
under gravity and they haven't
fully switched on fusion

25
00:02:40,736 --> 00:02:43,796
in their cores yet, or
maybe it's like a balance

26
00:02:43,796 --> 00:02:46,036
of maybe 50% fusion,
50% gravity.

27
00:02:46,126 --> 00:02:48,226
>> So you're saying that the one
they're doing now is a little

28
00:02:48,266 --> 00:02:50,416
bit more graphical,
if more of a --

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00:02:50,416 --> 00:02:53,696
>> So I'm really interested to
see the, some of the information

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00:02:53,696 --> 00:02:56,466
that we're collecting today
that deals with star formation.

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00:02:57,366 --> 00:03:01,736
We deal a lot with, in

eighth grade, about genetics

32
00:03:01,846 --> 00:03:06,186
and looking at the life cycle
of, of genes and organisms,

33
00:03:06,406 --> 00:03:08,126
and this allows us
to kind of talk

34
00:03:08,126 --> 00:03:09,746
about the life cycle of a star.

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00:03:10,276 --> 00:03:14,636
It allows them to see that,
that something even as complex

36
00:03:14,636 --> 00:03:19,046
or as far away as a star, you
know, can have a life cycle

37
00:03:19,046 --> 00:03:21,576
of its own and, and
helps them kind

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00:03:21,706 --> 00:03:26,056
of see how stars
fit into, into that.

39
00:03:26,056 --> 00:03:26,556
>> Like here?

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00:03:26,796 --> 00:03:27,296
>> Yeah.

41
00:03:27,536 --> 00:03:31,206
>> So these are three
different imagers that we have.

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00:03:31,306 --> 00:03:33,526
It's hard to see because they
just happen to be overlaid,

43
00:03:33,576 --> 00:03:36,066
but this is the target that
we're looking at right there.

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00:03:36,426 --> 00:03:39,866
>> For me, it's been, I mean,
everything from, you know,

45
00:03:39,996 --> 00:03:42,396
sitting down and having
conversations of star formation,

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00:03:42,396 --> 00:03:44,466
which is something that
I've never been, you know,

47
00:03:44,466 --> 00:03:46,666
at a table with scientists
and astronomers that,

48
00:03:47,016 --> 00:03:48,346
you know, can speak about that.

49
00:03:48,386 --> 00:03:51,016
Normally you'll, you'll read
it in books, like I said,

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00:03:51,016 --> 00:03:53,726
or you'll take a class, but
it doesn't get any more real

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00:03:53,726 --> 00:03:55,836
than actually sitting with
the people who are studying,

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00:03:56,306 --> 00:03:57,686

you know, this type of material.

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00:03:58,056 --> 00:04:00,606
>> And that allows us to
measure the thermal emission

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00:04:00,606 --> 00:04:01,906
from the telescope itself.

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00:04:01,906 --> 00:04:03,846
>> A raw image is going
to look like this,

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00:04:03,846 --> 00:04:05,696
and so you can see
that it's not flat.

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00:04:05,696 --> 00:04:07,816
>> I'd love to bring out my
students on an experience

58
00:04:07,856 --> 00:04:11,896
like this, but I can't, so I
look for opportunities for me

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00:04:11,896 --> 00:04:13,786
to experience things like
this and then bring back

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00:04:13,786 --> 00:04:14,646
that experience to them.

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00:04:14,646 --> 00:04:16,976
>> And then the final
step is that merge step

62
00:04:17,056 --> 00:04:18,356
where you add everything
together,

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00:04:18,356 --> 00:04:21,416
and then this is the final
image that you see here.

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00:04:21,616 --> 00:04:24,206
>> You know, I really teach
the 21st century skills

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00:04:24,526 --> 00:04:27,866
like critical thinking,
collaboration, communication,

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00:04:27,866 --> 00:04:31,186
and problem solving, and so
just giving them, you know,

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00:04:31,186 --> 00:04:34,576
real world examples of how all
these skills come together is,

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00:04:35,146 --> 00:04:37,726
is going to be so
valuable to my students.

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00:04:37,946 --> 00:04:40,446
>> So if you were to look at
the brightness versus wavelength

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00:04:40,446 --> 00:04:43,246
from that image, if it were
a cool object you would see

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00:04:43,246 --> 00:04:43,766
it rising.

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00:04:43,866 --> 00:04:47,406
>> I was very pleasantly
surprised to see

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00:04:47,406 --> 00:04:49,076
that a large number
of the teachers

74
00:04:49,076 --> 00:04:51,876
that were selected
were not only teachers

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00:04:51,876 --> 00:04:54,976
who don't necessarily have
to teach stellar astronomy

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00:04:55,196 --> 00:04:57,976
to their students, but they're
actually non-science teachers,

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00:04:57,976 --> 00:05:00,396
and so I think there's
a lot to this program

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00:05:00,396 --> 00:05:04,756
that could benefit teachers
or educators across the board

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00:05:05,106 --> 00:05:08,566
that don't think that just
because you don't teach

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00:05:08,666 --> 00:05:12,476
that to your students that
there aren't experiences

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00:05:12,576 --> 00:05:15,216
that can be a part of the,
the SOFIA program that,

82
00:05:15,536 --> 00:05:16,886
that you can't be a part of.

83
00:05:17,516 --> 00:05:21,546

[ Music ]