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00:00:01,670 --> 00:00:05,920
>> Welcome back to Building 9, the Space Vehicle Mockup Facility here at Johnson Space Center

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00:00:05,920 --> 00:00:08,730
where we've got some asteroid simulations going on.

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00:00:08,730 --> 00:00:11,340
We're back now talking this time with James Johnson,

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00:00:11,340 --> 00:00:13,450
who is the test director for this simulation.

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00:00:13,450 --> 00:00:14,650
Thanks for talking with us, James.

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00:00:14,650 --> 00:00:14,930
>> Thanks.

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00:00:14,930 --> 00:00:16,360
It's my pleasure, good morning.

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00:00:16,360 --> 00:00:18,930
>> So when we finished talking with Mike Gernhardt earlier,

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00:00:18,930 --> 00:00:21,640
we were just getting starting with some ARGOS work.

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00:00:21,640 --> 00:00:24,180
Can you kind of tell us a little bit about what's going on behind us, here.

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00:00:24,180 --> 00:00:25,300
>> Sure, excellent.

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00:00:25,300 --> 00:00:29,110
ARGOS stands for Active Response
Gravity Offload System,

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00:00:29,110 --> 00:00:32,890
and it's just one of several different
facilities that we're using here

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00:00:32,890 --> 00:00:37,640
at Johnson Space Center to go ahead and evaluate
doing near-earth asteroid simulated EVAs.

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00:00:37,640 --> 00:00:43,080
So part of overall Desert RATS test is to
really kind of do two things right now,

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00:00:43,080 --> 00:00:48,290
and that's first of all evaluating this new
second generation space exploration vehicle,

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00:00:48,290 --> 00:00:52,430
in addition to evaluating some of the
different facilities that we have here at JSC,

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00:00:52,430 --> 00:00:55,940
and how we might use those for fuller
fidelity tests coming up in August.

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00:00:55,940 --> 00:00:59,880
>> Okay. And so we're going to take a look at
the space exploration vehicle later in the hour,

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00:00:59,880 --> 00:01:03,790
but right now we talked earlier
about how we want

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00:01:03,790 --> 00:01:06,780
to get the geologist perspective
and the astronaut perspective.

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00:01:06,780 --> 00:01:10,930
So we've got Jose Hurtado, a
geologist with the University of Texas

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00:01:10,930 --> 00:01:14,170
at El Paso, banging on some rocks, I guess.

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00:01:14,170 --> 00:01:15,480
What is that going to teach us?

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00:01:15,480 --> 00:01:16,750
>> Exactly, exactly.

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00:01:16,750 --> 00:01:20,530
Well, what we're trying to do here in
evaluating the facility is get a couple

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00:01:20,530 --> 00:01:21,430
of different perspectives.

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00:01:21,430 --> 00:01:24,240
And as I believe you heard Mike mention earlier,
it's good to have an astronaut perspective,

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00:01:24,240 --> 00:01:29,080
as well as a geologist perspective, because
they have two different views as to how

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00:01:29,080 --> 00:01:31,630
to actually conduct a hands-on exploration.

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00:01:31,630 --> 00:01:35,040
When you go to an asteroid or
any type of near-earth object,

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00:01:35,040 --> 00:01:37,910
the main driver is going
to be science, of course.

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00:01:37,910 --> 00:01:39,380
So we want to have that perspective.

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00:01:39,380 --> 00:01:45,080
And what Jose is doing over here is
practicing just simple sample collection.

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00:01:45,080 --> 00:01:50,690
Most geologists will take a rock chip sample
to be able to get a piece of a full story

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00:01:50,690 --> 00:01:55,790
as to what the local geology is telling
them about the formation of that location.

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00:01:55,790 --> 00:01:58,260
Obviously, those techniques become
a lot more complicated when you're

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00:01:58,260 --> 00:02:01,070
in a micro-gravity environment,
which we're kind of trying

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00:02:01,070 --> 00:02:02,920
to simulate here using the ARGOS facility.

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00:02:02,920 --> 00:02:06,780
>> So you can't just get out on the surface
of an asteroid and start picking up rocks?

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00:02:06,780 --> 00:02:08,910
>> No, no, this is not quite that easy.

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00:02:08,910 --> 00:02:11,850
And we're still learning about
exactly how we're going to do that.

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00:02:11,850 --> 00:02:14,880
We're learning about the asteroids and then

here we're learning about some techniques.

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00:02:14,880 --> 00:02:15,980
So there's going to be some iteration.

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00:02:15,980 --> 00:02:19,180
As we learn more about the asteroids, we're
going to have to go back here and kind of back

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00:02:19,180 --> 00:02:23,910
to the drawing board a little bit and tweak
the concepts that we're testing out here.

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00:02:23,910 --> 00:02:27,570
>> Okay. And this is all part of what
we normally call the Desert RATS test,

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00:02:27,570 --> 00:02:30,990
Research and Technology Studies, and desert
because it's normally out in the desert,

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00:02:30,990 --> 00:02:33,870
but this year we're going to be
doing it here in Houston, right?

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00:02:33,870 --> 00:02:34,420
>> Exactly.

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00:02:34,420 --> 00:02:40,450
Yeah. It actually started back in 1997 with just
a small team of about four individuals heading

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00:02:40,450 --> 00:02:44,010
out to the desert, mostly
around Flagstaff, Arizona.

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00:02:44,010 --> 00:02:48,040
And as they went out there, they
were evaluating suit concepts.

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00:02:48,040 --> 00:02:53,480
Well, that's grown from just spacesuit concepts
to really taking a look at how you're going

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00:02:53,480 --> 00:02:58,490
to conduct missions, you know, on
the moon, on Mars, or on asteroids.

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00:02:58,490 --> 00:03:02,330
Right now we're in a year where we're kind
of building up new generation vehicles,

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00:03:02,330 --> 00:03:05,260
and so we're developing some new
technologies and new concepts.

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00:03:05,260 --> 00:03:09,280
So it didn't quite make sense to take
everybody back out to the desert this year.

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00:03:09,280 --> 00:03:14,440
So instead, we stayed a little more in-house
and took advantage of more of the tools

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00:03:14,440 --> 00:03:18,130
and facilities and personnel that we
had here in-house to kind of refine some

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00:03:18,130 --> 00:03:21,090
of our concepts before hopefully
return to the field in the future.

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00:03:21,090 --> 00:03:23,910
>> And so this month's test,
we're actually to get ready

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00:03:23,910 --> 00:03:26,800
for some bigger tests that'll
be taking place this summer?

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00:03:26,800 --> 00:03:27,800
>> Um, exactly.

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00:03:27,800 --> 00:03:32,110
We plan on doing the bigger
tests here at JSC, as well, just,

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00:03:32,110 --> 00:03:34,210
as I mentioned earlier, kind
of increasing the fidelity.

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00:03:34,210 --> 00:03:39,030
We hope to have an operational team over
in the Mission Control Center, actually,

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00:03:39,030 --> 00:03:42,720
in one of the small rooms
that's available to us.

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00:03:42,720 --> 00:03:48,950
And we will try to really simulate time delays
and that full interaction between the crew

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00:03:48,950 --> 00:03:53,230
and the Mission Control Center
in that full-scale simulation.

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00:03:53,230 --> 00:03:59,430
>> Okay. And so, what exactly is your
part in all this as a test director?

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00:03:59,430 --> 00:04:04,290
>> Well, it's really a job of trying
to bring all of the pieces together

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00:04:04,290 --> 00:04:08,440
so we can exercise these tests or
these evaluations and simulations.

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00:04:08,440 --> 00:04:12,940
So it's a lot of the coordination up front,
as well as also the realtime operations,

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00:04:12,940 --> 00:04:16,770
making sure everything is running smoothly,
we try to have things going as clockwork.

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00:04:16,770 --> 00:04:19,000
And also dealing with the unexpected, too.

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00:04:19,000 --> 00:04:25,520
You know, sometimes, especially as we're
learning here on-site, we're faced with,

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00:04:25,520 --> 00:04:30,070
you know, very unexpected events in having to
coordinate with other tests going on near by.

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00:04:30,070 --> 00:04:30,410
>> Uh-huh.

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00:04:30,410 --> 00:04:33,760
>> Now that is one benefit of when we're
out in the field, you know, the rattlesnakes

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00:04:33,760 --> 00:04:36,070
and the rabbits don't seem to
mind as much with our testing.

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00:04:36,070 --> 00:04:38,250
So here we have to make sure we're
good neighbors in good [inaudible]

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00:04:38,250 --> 00:04:40,310
with everybody else who's
trying to do their testing.

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00:04:40,310 --> 00:04:41,990
My job is to try and really coordinate that.

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00:04:41,990 --> 00:04:46,080
Make sure everything runs smoothly, and to get
the data collected that we need to collect.

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00:04:46,080 --> 00:04:47,590
>> Okay, well thank you so
much for talking with us.

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00:04:47,590 --> 00:04:48,420
We really appreciate it.

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00:04:48,420 --> 00:04:49,180
>> Well, thank you.

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00:04:49,180 --> 00:04:53,090
>> And like I said, we'll be back a little
bit later in the hour to take another look

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00:04:53,090 --> 00:04:56,700
at the space exploration vehicles,
part of the tests that are going on.

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00:04:56,700 --> 00:04:57,830
So back to Kiley [phonetic].