



GRAVITY ASSIST

FINAL EPISODE

1
00:00:02,969 --> 00:00:06,072
My gravity assist was my village.

2
00:00:06,072 --> 00:00:09,409
You always hear, you know, "it takes a village to raise a child."

3
00:00:09,442 --> 00:00:12,846
When I was about five years old, I went to the

4
00:00:13,380 --> 00:00:18,151
planetarium in London and it just completely opened my mind.

5
00:00:18,184 --> 00:00:21,421
I was nine years old when Apollo 11 landed, and I'll never,

6
00:00:21,421 --> 00:00:22,922
ever forget watching.

7
00:00:22,922 --> 00:00:26,326
A gravity assist is when a spacecraft gets a boost of speed

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00:00:26,326 --> 00:00:29,162
as it flies by an object like Earth or Jupiter.

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00:00:29,796 --> 00:00:34,501
But I also like to talk about gravity assist as an inspirational boost.

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00:00:35,402 --> 00:00:39,272
It's that person, place, thing, or event that propels

11
00:00:39,339 --> 00:00:42,442

people into the careers
that they have today.

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00:00:43,576 --> 00:00:44,844

Hi, I'm Jim Green.

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00:00:44,844 --> 00:00:47,680

And after five fantastic years

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00:00:48,114 --> 00:00:51,684

as I have retired from the role
of the NASA Chief Scientist,

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00:00:52,085 --> 00:00:55,789

NASA's Gravity

Assist podcast is coming to a close.

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00:00:56,689 --> 00:01:00,260

I'm so grateful to you, the listeners,
for coming on this

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00:01:00,260 --> 00:01:03,863

journey with me to tour the solar system
and beyond,

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00:01:04,097 --> 00:01:08,101

to investigate the moon,
to search for life beyond Earth.

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00:01:08,501 --> 00:01:12,439

And of course, to interview
those that are doing the discoveries

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00:01:12,439 --> 00:01:14,541

that we are every day.

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00:01:14,541 --> 00:01:18,511

You know, for this special final episode,
we're going to talk about

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00:01:18,511 --> 00:01:20,547

some of the highlights,
some gravity assist

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00:01:20,880 --> 00:01:24,184

in some of our NASA
memories of how we pulled these off.

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00:01:24,684 --> 00:01:28,188

Now, it's
not only me that made these things happen.

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00:01:28,188 --> 00:01:30,690

And as you know, that takes a team.

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00:01:31,357 --> 00:01:35,028

And that team is Liz
Landau and Manny Cooper,

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00:01:35,395 --> 00:01:39,666

and they're here with me
to talk about the success that we've had

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00:01:39,866 --> 00:01:42,869

and the workings
that needed to make this such

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00:01:42,869 --> 00:01:46,072

a success
behind the scenes at Gravity Assist.

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00:01:46,339 --> 00:01:48,241

So welcome, Liz and Manny.

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00:01:48,241 --> 00:01:50,343

Thanks to. Thanks, Jim. Glad to be here.

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00:01:51,744 --> 00:01:52,412

And it's really

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00:01:52,412 --> 00:01:56,616

hard to choose favorite episodes
or even favorite gravity assists.

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00:01:56,883 --> 00:02:00,587

But what I thought I'd do
is, is have a chat with

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00:02:00,854 --> 00:02:03,590

with Liz and Manny
about what our favorites are.

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00:02:04,124 --> 00:02:06,826

So without further ado, Liz,

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00:02:06,993 --> 00:02:10,296

what are your favorite episodes
in Gravity Assist?

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00:02:10,763 --> 00:02:13,500

Oh my gosh, Jim, it's so hard to choose.

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00:02:13,533 --> 00:02:16,936

I mean, it's been such
an incredible journey to learn about

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00:02:16,936 --> 00:02:21,908

the solar system and beyond,
but especially some of the episodes

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00:02:21,908 --> 00:02:26,045

in the astrobiology
season were really compelling to me.

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00:02:26,045 --> 00:02:30,416

You know, people
going out to learn about Antarctica,

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00:02:30,517 --> 00:02:34,821

finding out that there is life everywhere
you look, even

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00:02:34,821 --> 00:02:39,125

in the most extreme conditions on Earth
as well as people

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00:02:39,125 --> 00:02:44,297

looking at exoplanets for signs of life
and how we might do that.

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00:02:44,430 --> 00:02:48,835

Ravi Kopparupu at Goddard,
I really enjoyed that episode,

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00:02:48,835 --> 00:02:54,974

he talked about the possibility of could
we even find pollution on an exoplanet?

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00:02:54,974 --> 00:02:57,410

That's just so wild.

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00:02:57,710 --> 00:03:02,248

We can't make this show happen
without our audio engineer, Manny Cooper.

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00:03:02,282 --> 00:03:07,053

Manny, what's what are some of the
episodes that really stand out for you?

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00:03:07,253 --> 00:03:10,290

There are a couple of episodes
that really resonate with me.

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00:03:11,057 --> 00:03:13,293

The first one is the What is

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00:03:13,293 --> 00:03:15,395

Mars Sound Like episode with Nina Lanza.

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00:03:16,296 --> 00:03:17,463

That was really cool.

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00:03:17,463 --> 00:03:17,730

You know,

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00:03:17,730 --> 00:03:21,568

especially being an audio engineer
and getting to listen to sounds on Mars,

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00:03:22,635 --> 00:03:25,004

the Ingenuity
helicopter off in the distance,

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00:03:25,004 --> 00:03:28,308

and then the metallic wheels
on Perseverance, you know, rolling along.

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00:03:28,308 --> 00:03:30,310

Can we hear the wind on Mars?

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00:03:30,877 --> 00:03:32,045

We can.

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00:03:32,045 --> 00:03:35,582

And you know, in many ways,
it sounds like the wind on Earth,

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00:03:35,582 --> 00:03:37,083

but in other ways it doesn't.

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00:03:37,083 --> 00:03:39,052

So maybe we can take a listen.

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00:03:39,052 --> 00:03:42,121

Yeah, let's do that.

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00:03:43,756 --> 00:03:46,659

Another one
was the Listening to the Universe,

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00:03:46,659 --> 00:03:49,596

the Kim Arcand
episode was really interesting too.

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00:03:49,896 --> 00:03:53,266

She worked with an engineer
to compose musical pieces.

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00:03:53,266 --> 00:03:56,236

Yeah, Kim's data sonification are amazing.

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00:03:56,236 --> 00:04:00,440

Let me play you
a clip from one of those.

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00:04:05,445 --> 00:04:07,113

This is a very classic image.

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00:04:07,113 --> 00:04:09,315

It's of course, our home galaxy.

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00:04:09,315 --> 00:04:13,886

We're looking at the inner
about 400 lightyear region around

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00:04:13,886 --> 00:04:19,859

the supermassive black hole Sagittarius
A star at the very core of the Milky Way.

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00:04:21,361 --> 00:04:23,396

Episodes that I

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00:04:23,396 --> 00:04:27,267

really like are those that
come with a surprise.

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00:04:27,467 --> 00:04:30,570
When Catherine Walker talked about how

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00:04:30,570 --> 00:04:33,373
she almost fell through a glacier,

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00:04:33,940 --> 00:04:36,276
I mean, my heart stopped.

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00:04:36,609 --> 00:04:38,745
You know, another one that I really liked

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00:04:39,779 --> 00:04:43,016
was Sunny Panjwani, who he was

81
00:04:43,016 --> 00:04:45,585
in the JSC control room

82
00:04:46,152 --> 00:04:50,456
when the Russian module called Science
was just connected

83
00:04:50,456 --> 00:04:54,661
to the International Space Station,
and one of the rockets turned on.

84
00:04:55,295 --> 00:05:00,233
And that started
the entire space station to spin.

85
00:05:00,500 --> 00:05:01,534
It was just surreal

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00:05:01,534 --> 00:05:05,305
being there my first day and feeling
like I was still stuck in the simulation.

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00:05:05,638 --> 00:05:09,942

It really taught me that our training
is there to push us to our limits again.

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00:05:09,942 --> 00:05:11,911

And and sometimes, you know,

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00:05:11,911 --> 00:05:14,180

you just you're sitting there
and you can't believe what's happening,

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00:05:14,180 --> 00:05:16,916

but you're calm and you're collected
and you're ready to work the problem.

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00:05:17,050 --> 00:05:20,987

I would go as far as to say
that this entire process has been

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00:05:21,521 --> 00:05:22,989

like my gravity assist.

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00:05:22,989 --> 00:05:26,859

Yeah, I really feel the same way
and that it is really one of my favorite

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00:05:26,859 --> 00:05:31,264

things that I've ever worked on
to be able to be a fly on the wall

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00:05:31,264 --> 00:05:35,835

and listen to Jim Green
talk to such an amazing range of people,

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00:05:35,835 --> 00:05:39,906

and to learn about the possibilities
of what is out there.

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00:05:40,173 --> 00:05:43,142

We do hope that all of our audience out
there

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00:05:43,142 --> 00:05:46,579

has been inspired by this show
in some way, shape or form.

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00:05:46,879 --> 00:05:51,584

But you can also find out
so many other great NASA podcasts

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00:05:51,884 --> 00:05:55,254

by going to nasa.gov/podcasts.

101

00:05:55,254 --> 00:05:58,958

And in particular,
check out things like the Curious Universe

102

00:05:59,392 --> 00:06:03,429

for which more great stories
about the agency are being discussed.

103

00:06:04,330 --> 00:06:06,866

I'm Jim Green, and this has been your