

00:00:00	Music	Transition	“Oh No, Ross and Carrie! Theme Song” by Brian Keith Dalton. A jaunty, upbeat instrumental.
00:00:09	Carrie Poppy	Host	Hello, welcome to <i>Oh No, Ross and Carrie!</i> , the show where we don’t just report on fringe science, spirituality, and claims of the paranormal; no, tut, tut, tut, we take part ourselves.
00:00:18	Ross Blocher	Host	That’s right; when they make the claims, we show up so you don’t have to. I’m Ross Blocher.
00:00:21	Carrie	Host	And I’m Carrie Poppy. And today, boy, we have some—dare I say—out of this world guests.
00:00:27	Terry Virts	Guest	That was bad.
00:00:28	Ross	Host	Literally true.
			<i>[Carrie laughs.]</i>
			So 565 people have been to outer space as of this moment, and we have one of them in the room here. Colonel Terry Virts, welcome to <i>Oh No, Ross and Carrie!</i>
00:00:40	Terry	Guest	Yeah, it’s great to be here. I think the first phenomenon should be <i>deja vu</i> , ‘cause I’m like, have I done this before?
			<i>[Everyone laughs.]</i>
00:00:46	Carrie	Host	That’s wild.
00:00:47	Ross	Host	Sounds familiar. Well, we’ve talked before—
00:00:48	Terry	Guest	Yes, at Disney.
00:00:49	Ross	Host	—a previous life, yes. But we have another amazing guest with us today, and I’ll describe her quickly as just someone—if you have an impossible technical feat that needs to be done, you give it to Jannicke Mikkelsen. She is here today. Welcome, Jannicke, to <i>Oh No, Ross and Carrie!</i>
00:01:05	Jannicke Mikkelsen	Guest	Thank you so much, Ross and Carrie! I’m a big fan of the podcast, so it’s quite an honor for me to be here today.
00:01:11	Carrie	Host	Oh, I didn’t know that! Oh, thank you so much!
00:01:13	Ross	Host	The honor is <u>ours</u> . Thank you for coming today. So, I first met Jannicke when you had directed a live 3D panoramic 360 degree Queen concert with this—not jury-rigged, Jannicke-rigged—collection of GoPro cameras suspended from wires with crazy choreography. Is any of that right? Did I get that right?
00:01:34	Carrie	Host	She’s laughing silently.
			<i>[Jannicke laughs audibly.]</i>
00:01:37	Ross	Host	It was this amazing thing that no one should be able to do, and you did it.

00:01:40 Jannicke Guest The brief from the band, from Queen, was that they wanted a 3d, 360 movie that flew around the arena, the concert arena, as if it was a space ship.

00:01:48 Ross Host 'Cause famed guitarist Brian May is a big advocate and fan of stereography and, you know, those kids of technologies and photography. So he wanted to bring you into do this, right?

00:01:58 Jannicke Guest Well, the point was that they wanted 360 because they wanted to include their fans. The only reason why they tour now that they're over 70 is because the fans demand it. So they wanted to give something back to the fans, and the 360 show shows the fans and the concert. Of course, Brian May, being the stereoscopic collector and a historian, and specializing in Victorian stereoscopic photography and also astrophotography—

00:02:23 Ross Host Right, he leads the London Stereoscopic Company, if anyone's interested in learning more.

00:02:25 Jannicke Guest Correct. So he wanted a whole concert in 3D, yeah.

00:02:29 Ross Host But I met you, again, when you collaborated with Terry on the One More Orbit project, so we'll want to talk about that, too. Uh, but first, just to give a little more preface on Terry. You've flown—

00:02:42 Terry Guest Uh, two missions. One was a two week space shuttle flight, and then one was a 200 day Soyuz flight.

00:02:48 Ross Host Wow. Amazing. So how much time have you spent in space?

00:02:50 Terry Guest A little over seven months.

00:02:52 Ross Host Wow.

00:02:53 Terry Guest It was seven months. It's quite awhile.

00:02:55 Ross Host And you were up on the International Space Station. How fast is it going?

00:02:59 Terry Guest 17,500 miles an hour.

00:03:01 Ross Host That's amazing. Just to essentially stay at orbit, right?

00:03:04 Terry Guest Right, 'cause basically what you're doing is falling.

[Ross and Carrie respond affirmatively.]

'Cause there's gravity. You're not in zero G, there's gravity up there. So as you fall, you move forward at five miles a second, or eight kilometers a second, and that speed, if you're at the right speed, will be the same shape as the Earth. So that's basically what an orbit is.

00:03:20 Ross Host So just perfectly counteracts the falling, so you end up floating.

[Terry responds 'correct' and 'yup' while Ross speaks.]

That's a wild thought. Falling for nine months. Seven months?

00:03:28 Crosstalk Crosstalk **Terry and Ross in unison:** Falling for a long time.

[Both laugh.]

- 00:03:30 Carrie Host While you're doing that kind of work, what are you thinking of as like, the purpose of your day to day up there? Are you there to collect evidence? Are you there to educate? Are you there to further exploration?
- 00:03:41 Terry Guest Yeah, so the first flight I did, the shuttle flight, I was the pilot, and our job was to deliver the last modules on the space station. So we brought up something called Node 3, which is a big living room, and something called the cupula, which is this awesome seven-windowed observatory.
- 00:03:55 Ross Host Oh, you brought that up there.
- 00:03:57 Terry Guest I did. I installed it, yeah. And then that was like the end of the assembly sequence, so it took over a decade to build this massive million-pound spaceship. And then a few years later, I went back and ended up staying 200 days, and I was the commander. And then I did everything. We did science, and unpacked cargo ships, and I did space walks, and I was the crew doctor, and I kinda did a little bit of everything.
- 00:04:18 Ross Host So cool.
- 00:04:19 Carrie Host Do you have to keep a particular focus in mind? Like, "I'm doing this for all of humanity," or is it just so fun that you kind of don't have to have that?
- 00:04:28 Terry Guest Well, I think 99% of it is work. I mean, they have the schedule for you. It's kind of like Outlook, only it's down to the minute. And there's a red line, and that red line moves, and it was moving for seven months. And, you know, as soon as you're done with one box, you right-click on it, click complete, and then the next box is there, and so you move on to the next procedure.
- 00:04:46 Ross Host Is there any leeway, if you get sick or something like that, to move your schedule around?
- 00:04:50 Terry Guest They—some of the procedures are flexible. Some of them have to be done on time. So, I pretty much always did things on time, just to keep it simple. Some guys like to be flexible and, "Hey, can I move this around?" But for me, I just did what they told me when they told me to do it.
- 00:05:05 Jannicke Guest But Terry sometimes compares himself to like, the cable guy. When he goes outside in space, with like, an EVA.
- 00:05:11 Terry Guest That's what we did. We laid the most cables ever. We laid like 400 feet of cable on two of our three space walks, because eventually Boeing and SpaceX are going to be sending capsules there. This was back in 2014 when we were like, oh Boeing and SpaceX are sending capsules. Now it's 2019. But hopefully next year they'll do it, and when they do they'll need power and data. So I laid the cable for those capsules coming up hopefully next year.
- 00:05:33 Ross Host Amazing. And speaking of going outside the ship and being the

cable guy, if I recall, you told a story about practicing coming out of the ship and jumping across to grab onto a fixture.

00:05:44 Terry Guest Yes. Yeah. So, you go out of the airlock, there's this big batch. You check your buddy over, make sure every—his suit's good, your suit's good, and then you crawl, using your hands, you crawl to your worksite.

[Ross and Carrie both respond affirmatively while Terry speaks.]

So, there's a storage area a few feet away, it's called ESP-2, there's a bunch of space components on there. And you can reach like, the whole wingspan of me. If I outstretch both arms, I can go from the airlock and grab onto this thing and then go. It's a shortcut.

If you don't do that, you've got to crawl an extra 30 feet, and it takes a couple minutes. And you want to save every second you can. So in the pool for practice, I would always reach over and grab this module and go, and that would save me three minutes of time.

00:06:21 Ross Host You said the pool. So, underwater.

00:06:22 Terry Guest Underwater for training in Houston. We practiced spacewalking in a pool, so that you're in this 400 pound spacesuit, it's a way to float.

00:06:29 Ross Host It's like, "No big deal, I can let go of the station for a second to go grab this ESP."

00:06:32 Terry Guest Well, I would never let go, really.

[Everyone chuckles.]

But it was like the full length of my—

00:06:36 Carrie Host Yeah, there's a David Bowie song about what happens there. *[Ross laughs.]*

00:06:38 Terry Guest Yeah, exactly. The short-armed astronauts can't do that. They always have to do it. But mine was just barely, so I go out on my first spacewalk. I go out, I check my crewmate over, you're good, helmet's good, equipment's good. And I reached over and I stopped immediately and I just crawled. I kept both hands on the station. I'm like, "I'm not gonna do this."

[Everyone bursts out laughing.]

00:06:59 Ross Host Suddenly not worth it.

00:07:00 Terry Guest You realize the magnitude of the situation. Yeah.

00:07:02 Jannicke Guest What does the Earth look like underneath you, Terry?

00:07:04 Terry Guest That was sort of the first thing, except for, before I did the first thing, the very first thing I did, I went out the hatch—and it was nighttime thankfully, so I couldn't see anything—but I—some astronauts had gotten really dizzy by seeing the Earth. So, I took a tether. They have these like, short couple feet tethers. You can clip them to the station and then you can let go, and you'll only float a few feet.

So I put the clip down on the hatch and I let go.

[Everyone responds with shock and amazement.]

The very first thing I did as soon as I got outside is I let go. And I looked down at the Earth and I went, "Alright, I'm fine. I'm not gonna fall." I just wanted to mentally convince my brain that it's all good, I'm not gonna fall.

But it looks ama—like, to see the Earth, you just can't imagine it. Like, you've got a book there that's—

00:07:45	Carrie	Host	Yes, I do. I wrote this.
00:07:46	Terry	Guest	Yeah, it's a nice book.
00:07:47	Carrie	Host	No, you wrote this.
00:07:48	Ross	Host	Now, I was gonna say, for our flat Earth friends—we've spent some time with them—they would say, "Well these are lies, and you're making all this up. Show us photos to prove it." Uh, you've taken photos, haven't you?
00:07:59	Terry	Guest	<i>[Laughing]</i> Jannicke had a funny idea a couple years ago. Somebody wanted to raise—some rapper wanted to raise money to launch a satellite.
00:08:05	Ross	Host	B.o.B.
			<i>[Carrie responds affirmatively.]</i>
00:08:06	Terry	Guest	Yeah. And I was like, "Hey, what's your address? I'll send you a copy of my book."
			<i>[Carrie laughs.]</i>
			"You know, I've seen the Earth, it's round. If the Earth was flat, I'd still be going eastbound at 17,000 miles an hour. Thankfully it's round, and I came around and came back and landed."
00:08:19	Jannicke	Guest	Yeah, Terry's like, "Hey, I can save you a bunch of money."
00:08:22	Ross	Host	To fake these photos would take so much work and skill and craft, and I've worked with a film crew trying to generate one of these realistic plants—
00:08:31	Terry	Guest	How easy is it to hide anything today? Nobody is capable of hiding anything.
00:08:36	Ross	Host	The number of people required—
00:08:39	Terry	Guest	Because of, yeah social media—
00:08:41	Ross	Host	—and the time required—
00:08:42	Terry	Guest	—it's just not possible.
00:08:43	Ross	Host	—and why would you make a book this thick with photos? You

know, you'd make one half the size and be like, "There you go. Good enough."

00:08:49	Carrie	Host	Yeah, we're looking at like a 300 page book here.
00:08:51	Terry	Guest	No, but the Earth is so beautiful. It's awesome. It's impossible—like those photographs are pretty cool, and we're doing this right next to an IMAX theater today. And the movies you watch are just gorgeous, like they're so beautiful, and they don't even come close to what it's really like. Like, it takes your breath. It's such an emotional experience to see the planet. To not be on the planet and look down there and go, "Hey, there's my planet."
00:09:14	Ross	Host	Yeah. I want to see a really good VR experience that maybe approximates that slightly.
00:09:19	Terry	Guest	I actually made one, actually, a space walking VR experience.
00:09:22	Ross	Host	You did? Oh!
00:09:23	Terry	Guest	Yeah, with a Canadian—it hasn't been released yet.
00:09:26	Ross	Host	I can't wait.
00:09:27	Terry	Guest	It's really cool. The graphics in it are very good, and you can crawl around and do a spacewalk.
00:09:32	Ross	Host	Geek out on photography for half a second. What's your equipment that you take up there?
00:09:36	Terry	Guest	So, the basic camera on the station is a Nikon. It was a D4 when I was there, now they have D5's. It's just a basic, big Nikon camera that you see when there's a press conference, or there's a sporting event, one of those Nikons. We also had a Red Dragon, which is like a Hollywood—at the time—there's a YouTube video. They did a summary of the stuff I shot. It was the first ever ultra-high-def, it was really cool.
			But for the IMAX movie I shot, <i>A Beautiful Planet</i> , we did that on Canon. We had a Canon 1DC, which is, again, watch the—at the World Series tonight, all the photographers, a lot of them are gonna have Canon 1Ds.
00:10:09	Carrie	Host	That's baseball. <i>[Everyone laughs.]</i>
00:10:10	Terry	Guest	That's—right, it's sportsball.
00:10:13	Carrie	Host	Just letting the other listeners know.
00:10:15	Terry	Guest	Yeah, it's in the fourth inning, and it's killing me to not be watching it, so.
00:10:17	Ross	Host	Oh, no. I'm sorry.
00:10:18	Carrie	Host	Thank you.
00:10:19	Terry	Guest	But I'm being good. At least Scherzer has a lot of pitches on him. Hopefully we'll get him out the fifth inning. So the Canon 1D is a still camera we shot most of the movie on, and there's also a Canon

C500 which is like, a Hollywood video camera. And we also used a GoPro, and we had a Sony 3D camera, and we had this little camera called a Ghost, which is sort of like a GoPro.

- 00:10:40 Ross Host Whole film studio up in space.
- 00:10:41 Terry Guest It was one of each. We had lots of cameras.
- 00:10:44 Jannicke Guest This is a problem working with Terry. So, we work on filming projects together, and he'll just randomly go—'cause it's a lot of heavy equipment, right? And the lenses are big and the cameras are big and heavy and bulky, and he's like, "Oh, this is so much easier in space!"
- [Everyone laughs.]*
- 00:10:58 Terry Guest It's true. You don't need all these— *[Breaks off, laughing.]* There's a funny video we were watching. Changing lenses. My director of photography had a clip last night he was showing, and it was so awesome. You just hold this big—it's probably a ten pound lens. It's a giant piece of glass. You just let it go, take the other lens off the camera and then grab it while it's floating in front of you and put it on. Takes, you know, ten seconds. On Earth, you'd need—
- 00:11:19 Jannicke Guest It's a two person job.
- 00:11:20 Terry Guest —a camera assistant and a gaffer and a bus boy.
- 00:11:23 Ross Host Did you try doing that on the One More Orbit project? Taking a lens off and hoping it would float?
- [Everyone laughs.]*
- 00:11:28 Carrie Host I hope not.
- 00:11:29 Terry Guest They never floated. Yeah.
- 00:11:30 Jannicke Guest Terry, you have a story about that, coming back to Earth. I think you were drinking some water or something?
- 00:11:34 Terry Guest Oh, yeah. And my parents were there, and I went to—I said, "Hey, do you want a water bottle?" and I just like, I went to float it to them.
- [Everyone laughs uproariously.]*
- It floated for like a half a second before—before it hit the ground.
- 00:11:44 Carrie Host How long had you been back on Earth when that happened?
- 00:11:46 Terry Guest Uh, hours. *[Ross laughs loudly.]*
- 00:11:47 Carrie Host Oh, okay.
- 00:11:48 Terry Guest It was, like, my first day back.
- 00:11:50 Carrie Host Yeah so, I mean, your perspective has to shift substantially after being in space. And I'm sure that everything seems a bit smaller here on Earth. Do you have to then sort of convince yourself to like, still take Earthly problems seriously?

00:12:05 Terry Guest Oh, yeah. That's my mission now, is to focus on Earthly problems. 'Cause that's where everybody is. There's a handful of people in space, and they're gonna come back to Earth. So everybody that's ever been and everybody maybe that's ever gonna be is from here, so we need to take care of the planet. There's no plan B.

And these things seem to be going crazy these days, which these moves toward these dictators and the strong men and you know, everybody's—this nationalism and stuff. It's a really problem. Like, that—you can kind of laugh about it. It's good for the late-night comedians, sort of, except for those lead to wars, you know? So, those are the kind of problems that I want to solve down here on Earth.

00:12:42 Ross Host And uh, we mentioned the book. We should say the name. *View From Above*—

00:12:46 Terry Guest That's right. It's a cool title.

00:12:47 Ross Host —*An Astronaut Photographs The World*. Absolutely. Published through National Geographic. Beautiful book.

00:12:53 Terry Guest Thanks.

00:12:54 Ross Host Carrie's brought hers to get signed.

00:12:55 Carrie Host Yes, I have. And also—

00:12:56 Terry Guest I'll sign anything.

00:12:58 Carrie Host *[Laughs]* Great! Sign every page.

[Terry laughs.]

Also, I wanted to read a little passage from it, if I may. Maybe we can get our listeners to all buy *[voice grows strained, presumably while moving]* this here book.

Okay, so this is from chapter 8, The Human World.

00:13:12 Carrie Host “Seeing our planet from space, seeing our place in the universe, going out into space during a spacewalk, living and working in weightlessness. These things changed my perspective on life and our place in the universe. This new perspective took me some time to sink in. At first, the continuous wonder of space flight took all my attention, but the longer I spent gazing down at Earth from orbit, the more I began to recognize places I knew. And more than that, the more I began to notice evidence of humanity. From space, there is so much to learn about our place in this world, and the impact we've had on it.”

And then you talk about how everyone asks you if there are aliens. *[Laughs]* And uh, you make the point that, if an alien passes over Earth, they might not even know humanity was ever here.

And you go on, he—being the alien—”would also be able to see contrails of airplanes, especially over the east coast of America, as well as Europe. He could even see an occasional boat, and

especially crowded harbors. The ships waiting to come into port show up as a series of dots, and a busy shipping lane's wave patterns on the open oceans are visible in the right sun glint. But by and large, there is no immediate tell-tale sign of human activity during the day. This poor alien might just buzz past Earth without even knowing we were down there."

00:14:30 Terry Guest

That's all true.

00:14:31 Ross Host

That's good.

00:14:32 Jannicke Guest

You wrote that?

00:14:33 Terry Guest

I did. It must have been in my sleep.

[Carrie laughs.]

00:14:36 Ross Host

It's beautiful.

00:14:37 Carrie Host

It's so lovely, yeah.

00:14:38 Jannicke Guest

I make fun of Terry, 'cause he's such a hardened sort of astronaut and test pilot and fighter pilot, but when he writes, he changes personality to like, emotions.

[Terry laughs.]

00:14:48 Terry Guest

I have lots of emotions.

00:14:49 Jannicke Guest

I really struggle to get emotions out of him.

00:14:51 Terry Guest

I'm very emotional.

00:14:53 Carrie Host

Well, tell us about that. What about—what, is it the process of writing that kind of frees those things?

00:14:57 Terry Guest

That's a good question. I think there's something about me. A lot of times I'm extroverted, but really I'm an introvert. So being in front of people makes me clam up, and I want to do all these TV shows and movies and, you know, I had a big role in *One More Orbit*, but I'd really rather just sit by myself. And so I have this weird personality, so sometimes writing things is easier for me to express myself.

And I was for sure the least likely to write a book in high school. I mean, I got C's in English. I constantly apologized to my English teachers whenever I'm doing anything on air, because I'm sorry Miss Mitchell and Miss Hermann—

[Everyone laughs.]

—but I was a bastard. I was really bad. But—

00:15:35 Ross Host

Well, look who's a published author now.

00:15:37 Carrie Host

Yeah, Miss Hermann.

00:15:38 Terry Guest

Book number two's coming out next year.

[Ross and Carrie both respond enthusiastically.]

And I—by the way, I hate to let you in on a secret, but most astronauts don't write their own book.

- 00:15:46 Ross Host Ghost writers.
- 00:15:47 Terry Guest Yeah. But I wrote everything in there. Well, no, I had an editor that helped me, and she was great. Susan was awesome. But, for the most part yeah, I wrote the whole thing, and then I rewrote the stuff that she told me to rewrite, so.
- [Ross responds affirmatively.]*
- Um, and the next book was 11,100 words. So it was a lot of words when I turned in the manuscript. But I like writing. I love writing. I love storytelling, and I don't know why.
- 00:16:08 Ross Host So, if that wasn't all enough, you undertook the One More Orbit project. Can you tell us a bit about that? What's involved in One More Orbit? What record did you set?
- 00:16:17 Terry Guest *[Ross and Carrie both respond affirmatively several times while Terry speaks.]*
- A lot. We set like, I think 14. Our mutual friend, Hamish Harding, had this idea to set a world record flying around the planet. And he was looking at the types of airplanes and what records we could get, and he wanted to do over the poles.
- So we flew over the North Pole, South Pole, and back. And we took off and landed from the Kennedy Space Center in Florida, same place I took off and landed in the space shuttle, because this year was the 50th anniversary of Apollo 11.
- 00:16:44 Jannicke Guest And 500 years' anniversary of Magellan as well.
- [Ross responds enthusiastically.]*
- 00:16:47 Terry Guest Yeah, so it was like bonus, all the way around, and the One More Orbit year. *[Laughs.]*
- 00:16:52 Jannicke Guest The One More Orbit year, yeah.
- 00:16:54 Terry Guest So we flew around the planet faster than anybody ever did.
- 00:16:58 Ross Host You were in a Gulfstream?
- 00:16:59 Terry Guest We were in a Gulfstream business jet, yeah. So we just did a movie about it. I got to direct my first movie, which is awesome, and Jannicke was a big part of it. When we were doing credits, Jannicke's credits don't fit on one line, 'cause she had so many roles in there.
- [Everyone laughs.]*
- So originally, I asked her to be a photographer—
- 00:17:13 Ross Host That does not surprise me.

00:17:14 Terry Guest So I asked her to be one of our—she’s a cinematographer, and I knew I needed that on board, ‘cause I, yeah, I can grab a camera, but I can’t film and be in it and do everything, right? So she was supposed to do that, and then somebody had the idea of, “Let’s live stream this thing.” So, that turned into a massive monster, so she kind of got taken away into that.

00:17:34 Jannicke Guest Well, you know, the problem with live streaming, like everybody hears this podcast via the internet, and our guests and producers and even the people from the airline just assumed, well, there’s wifi on the airplane.

[Everyone laughs.]

00:17:46 Ross Host Yeah, but they don’t usually fly over the Antarctic.

00:17:48 Terry Guest Over the North Pole, right.

00:17:49 Jannicke Guest Exactly! I’m just like, “So, exactly where is this wifi signal coming from?”

00:17:53 Ross Host Right, this is exactly the sort of problem, like, “Okay, this would need a team of 20 to figure out. Let’s have Jannicke do it.”

[Everyone laughs.]

00:17:59 Terry Guest We’re not over the 101.

[Ross responds affirmatively several times while Terry speaks.]

You know, thankfully we’re moving faster than that.

00:18:03 Ross Host Tell us the story. How did that happen?

00:18:05 Jannicke Guest So, okay. So we need a few satellites to help us and um, I got in contact with Inmarsat, and Satcom Direct, and they go, “Yeah, this sounds like a really cool project, you know, following you guys around the world. How many satellites do you need?”

I was like, “Well—”

00:18:21 Terry Guest All of them.

00:18:22 Jannicke Guest “—How many do you have?”

[Everyone laughs uproariously.]

00:18:25 Ross Host Oh, that’s good negotiation there. I’m not gonna start with a satellite number, you tell me.

[Jannicke laughs.]

What did they tell you, how many did they have?

00:18:32 Jannicke Guest So, I took all of them.

[Everyone laughs.]

00:18:35 Ross Host Did they have to move any of these satellites for you?

00:18:37 Jannicke Guest Yeah, they had to move them for me as well. It took us a week to move them into position.

00:18:42 Carrie Host Oh, my gosh. How many was it, total? Do you know?

00:18:45 Jannicke Guest So, um, well there's four main ones, and then there's a fifth one that they can maneuver into position that's too synchronous, and then there's an additional sat that covers to help us over the North Pole.

00:18:55 Ross Host That's wild. And so normally they would have to be performing other functions. Did they have to like, kind of requisition some bandwidth for you?

00:19:03 Jannicke Guest Well, yeah. So the main problem actually is that when you fly over the North Pole and the South Pole is that you don't have a compass. You can't use a compass and you can't use the satellite signal, so that was the main problem.

[Everyone responds affirmatively.]

00:19:15 Ross Host That's come up in our debates with flat Earthers. They feel that there's a bunch of hokum happening with flights that supposedly go from like, Australia to the tip of South America. They would say, "Oh, well they pass out GPS. They're making up their location."

00:19:29 Jannicke Guest Yeah, well, I mean, in a nutshell. So if I jump back to the first question, was that—yeah, I had to ask them for both the commercial spots and the government spots. The ones that aren't used for commercial activity. And I also had to ask them to—so, each satellite is consisted of spots that they beam onto the aircraft, and they also gave me this super app where I could like, block other people and keep the satellite juice for myself.

00:19:56 Carrie Host Oh, wow!

00:19:57 Ross Host So you need to establish line of sight with the satellite, and then you—

00:20:00 Terry Guest That's the problem.

00:20:02 Jannicke Guest If you can't see the satellite, the satellite can't see you.

00:20:04 Ross Host Can it see through, I assume, clouds?

00:20:06 Jannicke Guest Not really. We fly above the clouds. If we're on the ground, it's hard to get ahold of them.

00:20:11 Terry Guest Ground is a problem. Clouds are okay.

00:20:13 Jannicke Guest Rain is also a problem.

00:20:15 Ross Host Are you keeping a steady altitude during this whole flight?

00:20:18 Terry Guest Well, we were mostly in the high 40s, but we had to—there's another story about Antarctica. But we were pretty high up.

00:20:25 Ross Host So, higher than a commercial flight.

00:20:26 Terry Guest Yeah. But like, if you go through your neighborhood, there's antennas, and they're always pointing at the same direction. That's 'cause of the satellites, what's called geosynchronous. It's over the equator, and it kind of stays in the same point relative to the Earth, so you never have to move your satellite—

[Ross and Carrie respond affirmatively.]

—in these latitudes. But you go off to the North Pole, you can't see something orbiting over the equator, so it's really on the horizon. So as we got closer to the North Pole, the satellite was like, 20 degrees above the horizon, ten degrees above the horizon, and then when we got close to the North and South Pole, it was right on the horizon.

So Jannicke was tracking the signal strength, and we ended up—there's a funny story. CNN Anderson Cooper did an interview with us. You can do satellite phone. There are these satellites called Iridium, and some others—

00:21:05 Ross Host Oh yeah. You see those every now and then.

00:21:07 Terry Guest —you can do a telephone call with, moving across the sky.

00:21:09 Jannicke Guest A really crappy signal, it's like, *[Imitates static noises.]*

00:21:13 Terry Guest Yeah. But you can do a phone call.

00:21:15 Ross Host But those are not geosynchronous.

00:21:17 Terry Guest They're not, no. So you can get them over the North Pole, and so our researchers in Antarctica use those for phone calls, but they're not good enough for bandwidth.

00:21:24 Ross Host Ah. Oh yeah, live video streaming.

00:21:25 Terry Guest So to do live video, we had to—

00:21:26 Jannicke Guest Barely good enough for a phone call.

[Everyone responds affirmatively.]

00:21:29 Terry Guest I was supposed to—Anderson Cooper—we were up at the North Pole. I was supposed to do it. We're coming down to 15 minutes, and I'm like, "I'm gonna have to do phone." Then five minutes, then about a minute left, I said, "Jannicke, I'm—forget this, I'm gonna do the phone."

And then 30 seconds before, she grabs her cell phone and goes, "Here. We're on." and just starts filming. I'm like, literally within seconds of going on air with Anderson, it just popped up, and I was like, "Oh hey, we're over the North Pole."

And we were really far north then. I don't even know—80-something degrees north. We were really far north. And these satellites all have, I think 22 antennas?

00:21:59 Jannicke Guest Yeah, something.

00:22:00 Terry Guest Right, so they're not—it's not just one giant antenna, 'cause it covers all kinds of parts of the Earth. But they normally don't point their antennas at the North and South Pole, because—

00:22:09 Jannicke Guest No one lives there. Why would you?

00:22:10 Ross Host Right, right. For the polar bear and the penguin on either side.

00:22:13 Terry Guest So Jannicke was able to talk them in, and they started pointing these things, and they need to know our exact ground track so they could know where to point them. So they really helped us out.

00:22:21 Jannicke Guest But also, the problem is we're going almost at the speed of sound, so.

00:22:24 Terry Guest Yeah, we were moving fast. So they had to track us at a certain time, and they don't have—it wasn't a radar that actually tracks the airplane, they just had to know when and where to point it. So they needed to know like, exactly when we were gonna be places.

00:22:34 Ross Host How long does it take to pull all these strings and get them to program this?

00:22:38 Terry Guest We only had like days.

00:22:39 Jannicke Guest *[Laughing]* We only literally had days.

00:22:40 Terry Guest I mean, the whole thing came together at the last second.

00:22:42 Jannicke Guest But we had people around the world working around the clock, like everywhere from Sydney to the States to the Middle East to Europe. We had headquarters everywhere working 24/7.

00:22:53 Ross Host Amazing. That's another thing like, okay, so if you need someone to do the job of 20 people, but you also need it done fast and well, which are usually at odds.

00:23:00 Terry Guest And cheaply. *[Laughs.]*

00:23:02 Ross Host And cheaply! Right, that's the golden three. You can have two, but not three, yeah.

00:23:06 Terry Guest Faster, better, cheaper. You get two of three.

00:23:08 Jannicke Guest Call Jannicke if you want all three!

[Everyone laughs.]

00:23:11 Ross Host Except you should pay her what she's worth.

00:23:12 Terry Guest I agree. I got paid twice what Jannicke got paid.

00:23:14 Ross Host Oh! Okay, that kind of math going on.

00:23:16 Terry Guest That's actually not true. I still haven't been paid, so.

[Carrie laughs.]

00:23:19 Ross Host Labors of love. Okay.

00:23:30	Carrie	Host	Yeah, science is such a beautiful example of collaboration, which I think it often doesn't get credit for, but here's a story about all these nations participating together in this project in, what, a few days? That's really extraordinary.
00:23:34	Terry	Guest	That is one of the themes of this movie. I wanted to, originally, I was gonna be a pilot and it all came together too late. So Hamish, the guy that put it together, said, "Why don't you make a movie?" And that's what I want to do in life, so it was a perfect opportunity. But we, Jannicke and I, talked like, how do you make—you can make a five minute thing about setting a world record, but how are you gonna make an hour long movie about guys flying in a business jet? I mean, so I was worried about—
00:23:54	Jannicke	Guest	Well, the International Space Cooperation is that, even though a country is at war, you will still cooperate in space. <i>[Everyone responds affirmatively.]</i> So actually, Terry has a great story about that.
00:24:04	Terry	Guest	<i>[Everyone responds affirmatively at different times while Terry speaks.]</i> Yeah, so as we're going through the movie, eventually I came to realize that setting the record is like the excuse for it, but there's a lot bigger ideas that I want to talk about. So we talked about the environment, we talked about international cooperation. When we stopped for gas in Kazakhstan, we picked up— <i>[Everyone starts laughing.]</i>
00:24:21	Carrie	Host	Like you do.
00:24:22	Terry	Guest	—my space station in Astana. We were running low on gas, so there was Astana, so we stopped. Gennady Padalka, my crew mate from the space station, joined us and flew down to Mauritius, and that was the best part of the movie. It's really a funny part.
00:24:36	Ross	Host	I can't wait.
00:24:37	Terry	Guest	One of the things—so space cooperation in general, and like how Apollo brought the world together. And so that's one of the things we were talking about is how Apollo brought the world together and this bringing the world together, and here, America and Russia have not exactly been the best of friends the last few years, but here, Gennady and I are having a great time. And so that was a big part of it. And when I was in space—
00:24:56	Jannicke	Guest	And Russia allowing us to get a direct flight path as well, which was quite difficult.
00:24:59	Ross	Host	Oh, normally that would not be—
00:25:02	Terry	Guest	Yeah, normally. So, there are these fixes that you have to fly to, and then you go wherever you want.
00:25:07	Ross	Host	No fly zones.

00:25:09 Terry Guest Well, sort of. Just, you know, America, everybody has them. So, the one for Russia is kind of out of the way, and one of our pilots is Ukrainian. So he called up and said, “Hey, we’re gonna pick up Gennady Padalka, the Hero of Russia.” And Hero of Russia is a biig deal. It’s like medal of honor kind of thing.

00:25:22 Ross Host Oh! It’s an actual title.

00:25:24 Terry Guest Oh, yeah. Like, you don’t wait in line, you get a special license plate.

00:25:29 Ross Host Hold on, let me put this on my bucket list.

[Everyone laughs.]

[Muttering, pretending to write] Hero of Russia...

00:25:33 Terry Guest Geroy rossii, da.

00:25:34 Jannicke Guest Gennady is like, what, 879 days in space?

00:25:38 Terry Guest *[Ross and Carrie respond with awe, saying “wow” multiple times.]*

Yeah, he’s got the most ever of any human, like he’s spent more time in space. So once we told him that, the controller was like okay, and he cleared us direct. Like, we got to fly across Russia the whole way.

00:25:47 Ross Host Friends, literally, in high places. *[Carrie laughs.]*

00:25:49 Terry Guest Yes, it is good to know Gennady Padalka. So yeah. When I was in space we had a similar story in that we’re sitting there. We had this ammonia leak, which is a super dangerous emergency. It’s chapter 5 in *View From Above*.

00:26:01 Carrie Host Okay. I’ll check that out.

00:26:02 Terry Guest And uh, we thought the station was gonna die. We were sequestered on the Russian segment, because they don’t use ammonia, they use glycol as their coolant. The Americans use ammonia as our coolant fluid, which is better and more efficient, and it takes more heat away.

00:26:16 Ross Host Suck it, Russians.

[Carrie laughs.]

00:26:17 Terry Guest The problem is it kills you dead.

00:26:18 Ross Host Oh, we’re talking about unity right now, I take it back.

00:26:20 Terry Guest So the one advantage the Russian system has is it doesn’t kill you dead if it leaks.

[Everyone laughs loudly.]

So yeah, we’re America, America’s great. We have these fancy systems—

00:26:27	Carrie	Host	Suck it, Americans!
00:26:28	Terry	Guest	—that just kills you dead.
00:26:29	Ross	Host	We're number one in killing people!
00:26:30	Terry	Guest	Right, and so similar thing. The space shuttle Columbia, a piece of foam put a hole in the wing and it killed the crew, seven of my good friends.
			<i>[Everyone makes sympathetic noises.]</i>
			The Russian Soyuz, one time it came back to Earth backwards, with the heat shield pointed in the wrong direction.
00:26:44	Ross	Host	And survived?
00:26:45	Terry	Guest	And survived, yeah. So, the Russian stuff is simpler, but it works.
00:26:49	Ross	Host	It's hardy.
00:26:50	Terry	Guest	It's hardy, yeah. The American stuff's more capable, but it breaks. And so anyway, that was a good example of that. So, the deputy prime minister, a guy who had Tweeted, "Hey Americans, you can take a trampoline to get to the space station," because we had shut down our program and the only way we could get to the space station was on the Russian Soyuz. So he wasn't very happy about sanctions.
			So in the middle of all this mess that everybody knows about, he called up and said, "Hey, you can stay as long you want. We're gonna work together. We're gonna get through that." It was a great example of International Cooperation, how things can and should go.
			This guy had actually walked me out to my Russian rocket. He like, held my arm as I was carrying my spacesuit and my cooling things, so. It's a good—space and exploration in general is one of the few things that can unite people, I think.
00:27:32	Ross	Host	Amazing.
00:27:33	Ross	Promo	Hey, everybody. Ross here. Sorry to interrupt this interview, but we gotta go to the billing department. And today, I am joined not by Carrie, but by Kara Blocher.
00:27:42	Kara Blocher	Promo	Hey!
00:27:43	Ross	Promo	You've all heard me talk about Kara before, my lovely wife. Though you've also heard her in our Ouija board episode, and our Thrive documentary commentary bonus content.
			We're celebrating Thanksgiving right now, and Carrie and I were not able to record before we left. So, first of all though, I do wanna say. As I was editing this, I don't know how I missed out on the obvious joke of Terry the Cable Guy, as he was laying cables. I apologize, listeners. That was an oversight on my part. Yeah, sorry.

00:28:10	Kara	Promo	Oh, damn. Total letdown.
00:28:12	Ross	Promo	Also, I'm sure you're wondering, "Wait a second, didn't they just interview David Mikkelson recently? Is Jannicke Mikkelsen related?" No. Different Mikkelsen. With an -en, not an -on. But I do think that's pretty impressive that we had two Mikkelsens on the show in relatively quick succession.
			But, we're gonna talk about—this is actually perfect. Today we're talking about a great product for your feet. It's called—you've tried Rothy's before.
00:28:35	Kara	Promo	I have, and they're so comfortable, and they come in an amazing array of styles and colors.
00:28:41	Ross	Promo	I always tell people about your experience with Rothy's, but here you are to talk about them yourself. You've got the black—
00:28:47	Kara	Promo	Yeah, I went totally plain, but I love them. They work with everything, and they're machine washable.
00:28:52	Ross	Promo	And yet they're made out of plastic bottles. That's crazy.
00:28:55	Kara	Promo	I know! But so comfortable.
00:28:57	Ross	Promo	So, if you're looking for the perfect gift for the woman in your life who's always on the go, and loves a good balance of fashion and function, consider Rothy's.
00:29:05	Kara	Promo	They're chic, stylish, and fully machine washable. Best of all, they're incredibly comfortable, and have zero break-in period thanks to their seamlessly knit design.
00:29:14	Ross	Promo	Plus Rothy's always come with free shipping, free returns, and free exchanges.
00:29:18	Kara	Promo	Rothy's are available in a wide array of colors and patterns.
00:29:22	Ross	Promo	Check out seasonal styles at Rothys.com/ohno . That's R-O-T-H-Y-S dot com slash oh no.
			Oh hey, this is perfect. Our other sponsor this week is none other than ModCloth. And this is another sponsor that I always talk about <u>your</u> experience with. In fact, you just ordered some new items from ModCloth, right?
00:29:41	Kara	Promo	I did. Thank you, ModCloth.
00:29:43	Ross	Promo	They've got some good post-Thanksgiving deals, so try to get in there real quick while you can.
			So what is ModCloth? They design vintage inspired apparel made relevant for right now, crafted by a team of in-house designers. Signature styles include bright, hand-drawn prints in an inclusive size range that celebrates all women.
00:30:01	Kara	Promo	You'll find quality pieces that are versatile enough to wear to work or on the weekend.

00:30:06	Ross	Promo	Feeling gifty but not sure what to give? ModCloth's gift guide has something for everyone. Seriously. Go check out their unique gift selection.
00:30:13	Kara	Promo	ModCloth believes fashion should celebrate all women. That's why they include a size range from 00 to 28.
00:30:21	Ross	Promo	Oh, wow.
00:30:22	Kara	Promo	No, they have a lot of really fun clothing that you cannot find anywhere else. So give it a try.
00:30:27	Ross	Promo	So, hurry! This offer is only valid for a limited time. To get 15% off your purchase of \$100 or more, go to ModCloth.com and enter code OHNO at checkout. That's 15% off your purchase of \$100 or more at ModCloth.com with code OHNO.
			And back to the interview with Terry, Carrie, and Jannicke.
00:30:52	Ross	Host	I should mention, we're here at USC right now, recording less than a quarter of a mile away from The Endeavor, the space shuttle that you were on.
00:31:00	Terry	Guest	My space shuttle, yeah. In fact, there's a scene in One More Orbit. I went out there for Endeavour, yeah. It was really cool to see it. Like, last time I saw it I was flying it, and now here it is.
00:31:08	Ross	Host	Your old friend.
00:31:10	Terry	Guest	Yeah. It's really neat. It's an amazing thing.
00:31:11	Carrie	Host	It's at the California Science Center, is that where it is?
00:31:13	Terry	Guest	It is. Yeah, just right across the street.
00:31:15	Ross	Host	Yeah. Great place.
00:31:16	Carrie	Host	The Endeavour, or the science center?
00:31:18	Ross	Host	Both. But, you know the Endeavour a little better.
00:31:21	Terry	Guest	I do. It probably smells musty in there. I mean, the hatch has been closed for like, eight years.
00:31:25	Ross	Host	And it's not spelled—it's spelled with the -our, because it's named after the ship? After like—
00:31:31	Terry	Guest	There's been a million Endeavour ships, but it's named after, I think, Captain Cook's Endeavour—
			<i>[Everyone responds affirmatively.]</i>
			—from the 1700s.
00:31:38	Ross	Host	Jannicke, I want to hear the story, because I know that as you're doing this live—
00:31:41	Jannicke	Guest	I haven't been in space.
00:31:42	Ross	Host	<i>[Laughing]</i> But you've circumnavigated the planet faster than

anybody else, except for Terry here, at least across the Poles—

00:31:49 Jannicke Guest Actually, I was at the front.

00:31:51 Terry Guest You were at the front of the plane, yeah. Technically.

00:31:52 Ross Host Oh, you beat him!

00:31:53 Terry Guest Yeah, you beat me.

00:31:54 Ross Host You crossed the finish line first. And so, as you're doing this live stream, people are watching and I assume commenting? You probably have, I would imagine, some flat Earth proponents who are interested in this endeavor, to use a loaded word here. What were they saying and doing as you were live streaming this video that was essentially disproving this model that they have with the North Pole at the middle of the disc and the south pole is this ice ring?

00:32:21 Terry Guest I think Archimedes disproved that a couple thousand years ago, but anyway.

[Everyone laughs.]

00:32:25 Ross Host Fair point. Your book of photographs of the Earth also disproved that. But this live stream of yours, it's hard for them to explain.

00:32:32 Jannicke Guest Well, I guess the question was how we're gonna reappear on the other side. Once we go over the edge of the South Pole, how do we pop up on the other side?

[Everyone responds emphatically.]

00:32:40 Ross Host How do you do that?

00:32:41 Jannicke Guest Time warping, obviously.

00:32:43 Ross Host I mean, did anyone say anything like that? What were the comments, like as people were watching?

00:32:48 Jannicke Guest You know, I was too busy to read the comments.

00:32:50 Ross Host Yeah. Okay.

00:32:52 Carrie Host Good for you.

00:32:53 Jannicke Guest My job is to babysit satellites and it's—you're awake for 46 hours.

00:32:57 Ross Host You're doing work, and forget the haters.

00:33:00 Jannicke Guest I have never stayed awake for 46 hours, but it was torture kind of just babysitting. You just become delusional eventually. Um, but it was kind of interesting from my point of view, because we do go LOS, so we lose the signal of the satellite and we're over the South Pole, we can't talk to anybody and we can't communicate if we have an emergency like we did.

00:33:22 Ross Host So there was time that you had to go offline.

00:33:24 Jannicke Guest Yes. So, for a good 8 hours we were without signal over the South

Pole, and our aircraft actually ran into a bit of trouble there. There was nobody we could contact to let them know that we were in trouble.

00:33:36 Terry Guest

We talked to the people at the South Pole.

[Jannicke laughs and affirms.]

Like, there were some scientists in a room that were wintering over there. They had like a—they had one of these radios, they all sat around and talked to us. But they couldn't help us. They could say, "Dude, that sucks," but that was about all they could do.

00:33:49 Ross Host

There's a few different stations in Antarctica, right? n

00:33:51 Terry Guest

There are, yeah. I've been to a Russian one, and an Indian one, and an American one. Yeah. So there's—

00:33:56 Jannicke Guest

Well, I just—whilst we're in this trouble, trying to figure out who do we tell about our emergency, I didn't realize there was a whole internet storm happening about figuring out how we were going to pop up on the other side of Earth.

00:34:07 Carrie Host

Okay, so you did see it later, then.

00:34:09 Jannicke Guest

I saw it later.

00:34:10 Terry Guest

We heard about it, yeah.

00:34:11 Carrie Host

Okay. Yeah, I'm curious what your guyses take is on whether to engage with that sort of thing? Do you just say, "I'm not even gonna feed that," or do you say, "Okay, people really believe this stuff, so I'm going to counteract it."

00:34:25 Terry Guest

Well. I think they just want Twitter followers. I'm making sure that you get a lot of comments on this podcast right now.

[Ross and Carrie laugh.]

I mean, I don't know. There's basic science education, hopefully. Like, vaccines work, the Earth is round, we landed on the moon, so we should figure out how to solve cancer and how to bring people out of extreme poverty and how to make electricity without polluting the Earth to death, and—

00:34:50 Ross Host

There's real big pants work to be done.

00:34:51 Terry Guest

There's actual things that we need to fix, and not silliness. The silliness distracts us. The fact that you could be asking me about space and Jannicke about making movies, and we're talking about that. You know, let's talk about meaningful stuff.

00:35:04 Jannicke Guest

But then, I kind of love the flat Earthers, because I don't understand their way of thinking and I just really want to.

00:35:11 Ross Host

Yeah. Yeah, how do you arrive at such a belief and hold it so strongly? I know you had talked, Terry, to Mark Sargeant, who is one of the proponents who really started the YouTube movement

for flat Earth.

And we had him on our show, and he talked a big game about the dome. And he just had such an inventive mind, and his ability to invent a solution to preserve his model was all that was required for him. As long as I can imagine some way to explain phenomena X, you know, I've done my job.

00:35:50	Terry	Guest	Well, that's a good—they should write manuscripts for movies. I mean, screenplays. <i>[Ross and Carrie respond emphatically as Terry speaks.]</i> <i>The Truman Show.</i> I love that movie.
00:35:45	Crosstalk	Crosstalk	Ross and Carrie: <i>[In unison]</i> They love that movie, too.
00:35:47	Terry	Guest	It's a great movie.
00:35:48	Jannicke	Guest	They should write orbital mechanics for the space shuttle.
00:35:52	Ross	Host	<i>[Laughing]</i> Oh no, heard the shuttle crashed.
00:35:57	Carrie	Host	You know, it's interesting. I hear a lot, that sort of perspective of like, "Well, why give airtime to these bad ideas?" and I feel more like, well, misinformation is like a virus. You know, it spreads, and you can say, "We shouldn't <u>have</u> to build a vaccine against that," oh well, we do, you know?
00:36:14	Terry	Guest	So what's the way—how do you kill—how do you de-weed your yard? Do you run around pulling weeds, or do you make sure the grass grows well? And I think a better way to do it is to have really strong grass, and then the weeds will eventually die out.
00:36:25	Carrie	Host	So what's the strong grass here?
00:36:27	Terry	Guest	<i>[Ross and Carrie respond affirmatively several times as Terry speaks.]</i> Science education. Like, just understanding the basics of life, you know? There's a lot of countries that do basic science education, but the internet, you know, everybody's got a conspiracy theory, and it's a constant flat Earth and aliens and, you know. <i>[Carrie laughs.]</i> It used to be JFK, but that was a long time ago. Now it's whatever.
00:36:45	Ross	Host	Now that's small potatoes.
00:36:46	Terry	Guest	There's always gonna be stuff like that, I get that. But like I said, there are some <u>real</u> things that we should be spending our time on, and not necessarily some other stuff.
00:36:54	Jannicke	Guest	Or, Terry, we could end up being the eight most famous people in the world for having time warped.
00:36:58	Terry	Guest	That's true.

00:37:00 Carrie Host You didn't think of that.

00:37:01 Terry Guest Well, I'll see what the endorsement deal is, and you know, we could change our tune.

00:37:05 Carrie Host *[Laughs.]* Well, speaking of other important things, you're missing a baseball game for us. Thank you so much. And you're wearing a jersey for the Astros. Do you love them because of their name?

00:37:14 Terry Guest Two jerseys.

00:37:15 Ross Host Ad Astros.

00:37:16 Terry Guest *[Ross and Carrie both respond emphatically several times.]*

I'm actually a transplanted Astros fan. I was an Orioles fan growing up. I grew up in Baltimore. And I'm still an Orioles fan, I love the Orioles and always will. I used to always root for an Astros/Orioles World Series when the Astros were in the national league, but as Jannicke knows, now they are—they moved to the American league.

00:37:31 Ross Host Am I remembering right, uh, Cal Ripken? Cal Ripken Jr. for the Orioles?

00:37:34 Terry Guest You are. Yeah. The Iron Man, yeah.

00:37:36 Ross Host I used to be really into baseball growing up. We're talking about Nolan Ryan before this. You had a signed Nolan Ryan baseball.

00:37:42 Terry Guest I did. Nolan's son just offered me two tickets to the game tonight. I'm like, "Ah, I'm in LA, I can't go."

00:37:48 Ross Host That's amazing! How cool.

00:37:50 Jannicke Guest I had never even seen a baseball game until this year.

[Everyone laughs.]

00:37:54 Terry Guest Yeah, her first game was at the Dodgers. Yeah, in the suite.

00:37:57 Jannicke Guest It was nice.

00:37:58 Ross Host Yeah, Jannicke, you are from Norway.

[Jannicke makes an "uh-huh" sound in affirmation.]

Excellent. How's Norway doing this time of year?

00:38:02 Jannicke Guest It's colder.

00:38:03 Ross Host Okay.

00:38:05 Carrie Host Did you like *Frozen*?

[Everyone laughs and responds enthusiastically.]

00:38:10 Jannicke Guest I did! I loved it!

00:38:13 Carrie Host Good, 'cause Ross worked on it!

00:38:15 Ross Host Are you looking forward to *Frozen 2*? It's coming soon!

00:38:17 Jannicke Guest I can't wait! I want to be Elsa!

00:38:21 Terry Guest I want to be Olaf.

00:38:22 Jannicke Guest And my dad's name is Olaf.

00:38:23 Terry Guest When I launched—

00:38:24 Carrie Host What?

00:38:25 Terry Guest —in the Soyuz, you have this talisman that tells you, it's the индикатором невесомости, so it tells you when you're weightless, obviously. And uh—

00:38:34 Ross Host If you couldn't tell.

00:38:35 Terry Guest —it's a little doll. And Anton's daughter was eight, and she got a little Olaf doll. So we flew into space with Olaf there.

[Ross and Carrie say "aww!" emphatically.]

00:38:42 Jannicke Guest He's like, dangling in the rear view.

00:38:43 Terry Guest And then once you get to space, they start floating, and so yeah.

00:38:45 Ross Host Olaf's been to space! That's amazing.

00:38:47 Carrie Host Good for him. How much stuff can you pack to go up to space?

00:38:51 Terry Guest On the Soyuz, one and a half kilograms. So like, smaller than your purse there.

00:38:54 Carrie Host Oh, my god! Okay. And you still brought a baseball.

00:38:57 Terry Guest Uh, yeah.

[Everyone cracks up laughing.]

What else would I bring?

00:39:00 Carrie Host Terry opens his eyes wide in accusation.

00:39:03 Ross Host Yeah. "How could even ask? We're talking about important stuff in this interview!"

00:39:10 Jannicke Guest What would you bring to space, Ross?

00:39:11 Ross Host I'm guessing all the camera equipment did not count.

00:39:14 Terry Guest You can't, no. You're not even allowed to bring camera equipment. You don't need to. There's every camera you ever want.

00:39:19 Ross Host That was all part of the—

00:39:20 Carrie Host Attaché.

00:39:21 Ross Host What would I bring to space?

00:39:22 Carrie Host Yeah, what fun thing would you bring?

00:39:24 Ross Host I dunno why, I thought of a Rubix cube right away. I don't know.

00:39:27 Terry Guest It'd be cool to give your kids. But guys have tried to sneak cameras, and I'm like—

00:39:31 Ross Host Why?

00:39:32 Terry Guest "Dude, why'd you bring a little camera?"

00:39:34 Ross Host Yeah, if there's other cameras available.

00:39:35 Terry Guest There's every professional camera in the world is there.

00:39:37 Ross Host This is a good question. I'm not prepared for it. Can you bring food items like milk duds?

00:39:41 Terry Guest Um, they have like, a separate place for that. So you can get like, care packages. Like, I love Reese's peanut butter cups, so I got those and these little chocolate blueberry dark chocolate things I love.

00:39:52 Carrie Host I did notice that fruit plays a large role in your book. It seems like fruit was really a premium.

00:39:58 Terry Guest Oh, yeah. It only comes up, you know, once every couple months on a cargo ship, and that's when the cargo ship doesn't blow up. We had three cargo ships blow up. Uh, Signus, Orbital—now it's Northrop Grumman—blew up, full of my chocolate and underwear and everything else.

00:40:12 Jannicke Guest Nooo!

00:40:13 Ross Host And those are all unmanned ships.

00:40:15 Terry Guest Those are cargo, unmanned cargo ships. And then a few months later, a Russian Progress blew up. And then a few months after that, a SpaceX blew up.

00:40:22 Ross Host Wow, jeez. No refreshes, no fruit.

00:40:24 Terry Guest It kinda sucked for eight months. So the station was running low on supplies. Thankfully there was enough, NASA had managed it really well. There was enough spares. But, it was in—one more and we would've had to start bringing guys home. It would've been, yeah.

[Ross and Carrie respond affirmatively.]

But luckily, *[sound of knocking on wood]* that hasn't happened since.

00:40:42 Ross Host Okay, I've got to ask you about another thing that falls within our bailiwick, and that's aliens. You hear a lot of stories from astronauts who have seen interesting things in space, or things they can't explain, or sparkly objects, you know.

And an astronaut's word is, I think, a little more interesting on such matters. What are your thoughts about life outside of our solar system in general, but also about whether any of it has visited here?

00:41:03 Terry Guest So, I've got a couple thoughts on that. That's always one of the top questions at every talk I ever give, and it's a valid one. So, there's so many stars. You cannot imagine. You go a couple hours north of here, in the Sierra Nevadas, at night, in the clear night, and look up. It's like, wow. I gasped out loud the first time I saw that.

00:41:20 Ross Host And all of the ones we can see with our naked eye aren't too far away.

00:41:24 Terry Guest Right, they're only tens and hundreds of lightyears away. But when you go to space, there's like ten times more than that. More stars than you can imagine. And now NASA has some satellites, Kepler and others, that are looking for these planets and finding them. So, there's billions of planets out there, and that's just in our galaxy, and there's billions of galaxies, so of course there's other planets like ours.

So on the one hand, you would think that there's aliens. But on the other hand, the more I learn about life—I did an awful lot of guinea pig investigations on my eyeball and my brain and my heart, just looking at all the details. The more I learned about life and the complexity of it, I just don't think it would ever happen on its own. Like, if you took a pile of metal and left it on this table for a billion years, it would never make a Coke can.

And I was just learning, uh, my son is a chemical engineer in school, and he was telling me that even the simplest one-cell organisms have millions of molecules. Many of them have trillions of molecules. So, to think that millions of molecules would suddenly line up in the exact right way, and form an organism with DNA that can replicate is crazy. Like, that could never happen.

00:42:35 Terry Guest So I just think you need—if you see a created thing, that means there's a creator. So even though there's billions of planets, I think if there's life, somebody has to make it. Which maybe they did. I came away from space, like, I don't have enough faith to be an atheist.

[Ross and Carrie respond emphatically.]

But, all that stuff's kind of a moot point, 'cause those stars are really, really, really, really far away. And, you know, we've been sending out signals now for a hundred years, radio signals. So maybe the aliens will hear those one day. But, they're eventually gonna see the signals of Trump and Kim at that summit and they're gonna turn around and go somewhere else.

00:43:08 Ross Host Well, the first signal we sent out was, uh, Hitler giving a speech, so.

[Terry laughs.]

That one's on the leading edge.

00:43:12 Terry Guest They're gonna get those signals, yeah. But, that's a joke, obviously. But they're obviously not gonna get those signals, because the sun is so much brighter than the biggest antenna we have. Like, if we transmitted with all of our power possible, you would never hear it, because the sun would just overwhelm it, because it's so much

more—the radio signals that it makes, you know, the signal to noise ratio would never be what it needs to be.

00:43:36 Ross Host That's an interesting point.

00:43:37 Terry Guest So, there's lots of planets, so you'd think there would be aliens. Um.

00:43:41 Ross Host The numbers are good.

00:43:42 Terry Guest I don't think there are, unless somebody made it, because life is just so complicated. Um. But even if there is, we're never gonna see them, because they're so far away.

00:43:50 Ross Host So we can track life back at least through kind of our evolutionary history, back to early, simpler forms. But you would say, kind of, at some point you need something to help out with—

00:44:00 Terry Guest Who makes that first cell? And even if you make one cell, what's the odds that that cell is gonna survive and make two more, and what's the odds that those two are gonna survive and make two more? And then, you know, how do you get an eyeball?

00:44:11 Carrie Host Well, you've really zagged on us here, Terry. *[Laughs.]*

00:44:14 Terry Guest If you have just a small part, if you just have an optic nerve, well, then you have to wait another billion years before the cornea forms, and then you have a billion years of some species with half of an eyeball. So that guys gonna die, 'cause he sucks to be. Yeah, you know, he's got a mutated eyeball.

00:44:28 Ross Host Well, he might be better than the guy next to him with no eyeball.

00:44:31 Carrie Host Right, with no eyeball.

00:44:32 Terry Guest Yeah, but if you only have part of an eyeball, you're worse off, right? Until you get a fully operational one.

00:44:37 Carrie Host Mm, no. I mean, because, you know, like sensitive patches of skin still like, gave information to the animal, even if it wasn't a fully formed eyeball.

00:44:46 Terry Guest That—I don't know. It could. It's so complicated to, you know.

00:44:50 Ross Host It's a wonder to behold either way.

00:44:51 Terry Guest It's pretty cool. It was fun. I love the science that we did, because it was fun to kind of learn about all different subjects. Biology, material science, physics, chemistry.

00:45:02 Ross Host *[Terry responds affirmatively several times.]*

Oh man, yeah. Is that all part of kind of the required training? You're heading up there, you're gonna be sort of the advocate or the working arms of a bunch of scientists on the ground who want you to be carrying out their experiments.

00:45:14 Terry Guest Yeah. So, I'm not a trained—I'm a fighter pilot, my background. But these PhDs worked on this thing for five or ten years, and finally it's in space, and finally an astronaut's gonna do it. And I'd never seen

it before, and I show up to handle those very diligently and seriously, because I knew some—a group of people's careers were focused on this one thing that I only had an hour to work on. So, we're basically like lab techs who show up and do an experiment with very little training.

00:45:40 Ross Host Okay. So you don't get the honorary degree for all this hard work you've done.

00:45:42 Terry Guest No, I haven't gotten any honorary degrees.

00:45:45 Ross Host Just putting that out into the universe.

[Terry laughs.]

00:45:47 Carrie Host We are. We're sitting in USC, come on, guys.

00:45:50 Terry Guest I am at USC. I am.

00:45:51 Ross Host In case anyone's listening. Um, but so looping back to the earlier question, I think it's safe to say then that you don't think any aliens have visited this planet and people have maybe been misperceiving phenomenon they've seen.

00:46:04 Terry Guest I haven't seen anything like that personally. I know there's been—I mean, there's been—look, people have seen stuff. There's been these reports in the Washington Post and the New York Times and these tic-tacs that the Navy pilots have seen, and I can't explain them. I don't know. I didn't see them myself.

00:46:18 Carrie Host Tic-tacs? I don't know what that means.

00:46:19 Terry Guest You've heard about these, right? These Navy sightings?

00:46:22 Ross Host Yeah, this came up recently, right, as a news item?

00:46:24 Terry Guest The first one was in 2004 and there's been some recent ones, yeah. It's been here off the coast of California. These little round—they have, you can Google it, on the Washington Post and you can see videos of these things on F-18 HUD cameras.

00:46:37 Carrie Host But Tic-Tacs meaning that's sort of the shape of them, okay.

00:46:39 Terry Guest They're shaped like an oval, yeah.

00:46:40 Carrie Host Gotcha.

00:46:41 Ross Host So you would say that's worth paying attention to, but—

00:46:44 Terry Guest Well, I can't—I haven't seen anything myself, but other people see stuff. Obviously, most stuff can be explained, but you know, it's funny to think that. Why would you travel all the way across the universe, and go to New Mexico?

[Everyone laughs.]

Think about it. Of all the places to go, they go to Roswell?

00:47:00 Carrie Host Well, they don't know where they're going, they're just shooting out

there.

00:47:02 Terry Guest And, here's the other thing. Like, everybody's interested in Area 51. Well, what about Area 50? Nobody ever talks about that.

[Everyone laughs uproariously.]

00:47:08 Ross Host Oh, you just started a whole internet rumor.

00:47:09 Carrie Host Oh, you're about to— yeah, exactly!

00:47:11 Terry There's gonna be a whole—

00:47:12 Ross Host Storm Area 50! Terry Virts says there's stuff there!

00:47:18 Carrie Host What's Area 50?

00:47:19 Terry Guest I dunno, that's a good question.

00:47:20 Carrie Host Oh, okay. *[Laughs.]*

00:47:22 Ross Host Well, you know, you don't get Area 51 without, uh, Areas—

00:47:24 Carrie Host One through 49?

00:47:27 Terry Guest Like WD-40. Was there ever a WD-39?

00:47:30 Ross Host There was, yeah! That's the idea, that was the experiment that finally worked.

00:47:35 Carrie Host The Heinz-57 or, 87, or something. Like ketchup.

00:47:37 Ross Host Oh, I'm not sure of the origin there.

00:47:38 Terry Guest That's like, that's how many spices they put in there.

00:47:41 Ross Host Are all in there? Or was it just the fifty-seventh iteration?

00:47:42 Carrie Host No, they said it was just, like, the—

00:47:43 Terry Guest Or was it just the fifty-seventh recipe?

00:47:45 Ross Host Or was it just the fifty-seventh iteration?

00:47:46 Carrie Host Yeah, because I think they did a contest, and that's the one that won was—that's the one people liked the most. Yeah.

00:47:52 Terry Guest Who knew?

00:47:53 Carrie Host Now we're getting down to the important issues! How does ketchup get named?

00:47:59 Terry Guest Ketchup in space.

00:48:00 Ross Host I assume the film is gonna be called *One More Orbit*? And you're busy editing it right now?

00:48:05 Jannicke Guest Yeah, we're editing it together with editors, yeah.

00:48:08 Ross Host And how and when will people be able to see this?

00:48:10 Terry Guest That's a great question. So, we finished color today. Tomorrow's like, the final-final edit, uh, and then from there, the production company's gonna take it out. Netflix, Hulu, whoever. You know, all the different distribution channels. So, we'll start that process the day after tomorrow.

00:48:25 Ross Host We never said it, what was the record for circumnavigating the Pole, the North and South direction?

00:48:31 Jannicke Guest 46 hours, 40 minutes, and 22 seconds. Not that anybody's counting.

00:48:36 Terry Guest Plus or minus.

00:48:37 Ross Host Try to beat that, anybody else!

[Terry laughs.]

I was just reading about the guy who beat the marathon record, a good two hours.

00:48:43 Terry Guest Oh my goodness!

00:48:45 Ross Host What an accomplishment, that's amazing, it's like 13 miles an hour, or something like that. Sustained.

00:48:50 Terry Guest I couldn't run one lap. We were talking about the speed—

00:48:52 Jannicke Guest We were in the gym, yeah, I was trying to put the treadmill on 21 kilometers per hour, and it was just like, "There's no chance I can run for two seconds!" *[Carrie laughs.]*

00:48:59 Ross Host Here all of us are just blathering away in U.S. measurements. We're the only country that does that. You're using the sensible—

00:49:04 Jannicke Guest Oh, sorry for that.

00:49:06 Terry Guest Oh, it's like 13 miles per hour. It's-it's not possible. It's basically—go to the track at your local high school and run as fast as you can—

00:49:14 Ross Host —and do that for 26 hours?

00:49:15 Terry Guest —and after half of the lap, you're gonna be out of breath, and that's how fast the guy did, it for 26 miles, yeah.

00:49:20 Ross Host And you did the flying equivalent of that, around the world.

00:49:23 Terry Guest We did the flying equivalent. Yep.

00:49:25 Ross Host Fantastic.

00:49:26 Terry Guest That guy was moving fast, that was impressive.

00:49:27 Ross Host It's cool to see humans do—

00:49:29 Terry Guest Oh, Jannicke ran a half marathon with the guy, yeah.

00:49:30 Jannicke Guest You know, I actually ran a marathon with that guy, yeah.

00:49:33 Ross Host What?

00:49:35 Jannicke Guest *[Ross and Carrie respond emphatically several times.]*

And he was coming in for—so, as I was finishing the half-marathon, the people who run the full marathon come back, and sort of loop back on themselves, so we all end up at the same goal. But the problem is that, you have to run next to them as they're coming towards you as you run, sort of away, and then it's just terribly demotivating, because, I am so tired!

00:50:00 Ross Host You're working hard, and here comes...!

00:50:02 Jannicke Guest I'm at this two hour point, and I'm just happy one foot is in front of the other! You know, I'm looking down to actually check if one foot is in front of the other.

00:50:08 Ross Host Eliud Kipchoge, that's the man's name.

00:50:11 Jannicke Guest And here this guy is running as smoothly as anything, like a body length between his feet, flying. It was so smooth, he could be drinking a cup of tea.

00:50:18 Carrie Host *[Laughs]* What a braggart!

00:50:19 Jannicke Guest I was so jealous! I was so jealous! And just sort of, like, the jealousy and hate I felt—

[Everyone starts laughing.]

—at how easy this guy could run and float! It was unreal!

00:50:33 Ross Host Oh, that would be so dispiriting for me. Absolutely. I have a friend who runs some six-minute miles, and even that is frustrating. So, I dunno what to do with a person like that.

00:50:41 Carrie Host I've never run a mile.

00:50:44 Ross Host ... I don't believe that.

[Everyone bursts into laughter.]

00:50:45 Carrie Host No, that's true! That's literally true. I've stopped—I've like, been told to run the mile, and then like, you know, run and walked—

00:50:52 Terry Guest Not even in seventh grade when they make you?

00:50:55 Ross Host Like, for the Nolan-Ryan fitness test? Or the Presidential one?

00:50:57 Carrie Host Yeah, that's the closest I've come. It was eighth grade. They made us run the mile, and I did it in 7:24, I remember that.

00:51:05 Ross Host That's really good!

00:51:07 Carrie Host Well, I only did—walked for part of it.

00:51:09 Terry Guest Minutes or hours?

[Everyone bursts into laughter again.]

00:51:13 Ross Host Oh, casting some shade!

00:51:14 Carrie Host It took 7 hours, but I did a great job. My pants were full of poop.

00:51:19 Ross Host That's really fast, uh, interesting.

00:51:20 Carrie Host Well, my friend Ryan was keeping me going. But I walked for part of it.

00:51:25 Jannicke Guest Me and Terry always had gym battles.

00:51:28 Ross Host Yeah—oh, gym—okay.

00:51:29 Terry Guest Yeah, I went loose because Jannicke was on the Norwegian national speed-skating team for the Olympics a few years ago, so.

00:51:35 Carrie Host Woah!

00:51:36 Ross Host Wait, wait, what? Say that again.

00:51:37 Terry Guest Yeah, she was a Norwegian speed skater.

00:51:39 Jannicke Guest I never qualified for the Olympics.

00:51:41 Carrie Host Oh, you never qualified, okay. *[Imitates snobby tone of voice.]* Um, we're not impressed, Jannicke.

00:51:45 Terry Guest By two-hundredths of a second.

00:51:47 Ross Host Holy crap!

00:51:48 Carrie Host Oh my god, that's amazing! Can we find you skating on YouTube?

00:51:52 Jannicke Guest It was before the YouTube era.

00:51:54 Ross Host Oh, really?

00:51:55 Terry Guest It was before the internet.

00:51:56 Jannicke Guest Can you believe that? There was actually time before the internet.

00:51:58 Carrie Host *[Laughs.]* Well, this has been extraordinary. Thank you both, so much.

00:52:02 Ross Host Yeah, both of you are such fascinating people, who've done so many things. What's next, after *One More Orbit*?

00:52:08 Terry Guest Well, we've got a couple of ideas for some TV shows.

[Carrie makes a delighted sound.]

00:52:11 Ross Host I know you're always running around. You've got, you know, 58 things you're doing.

00:52:15 Jannicke Guest We were in Chukotka in the far east of Russia, far east of Siberia, 2,000 miles north of—

00:52:21 Terry Guest *[While he talks, Ross and Carrie hum in understanding several times.]*

Vladivostok. Yeah, we were... It was far. It's actually really close to Alaska. You can see Sarah Palin across the Bering Strait.

[Ross and Carrie laugh.]

But it was amazing, it was so beautiful there. It was really cool. I was doing a speech for a friend of mine for business school who runs a company there, and it was a really amazing thing.

So we have some ideas about doing a TV show to visit these places I saw from Earth, and see kind of how the Earth affects people's lives. It's very different living in the northern Arctic region, versus living in the Bahamas, versus living here, where it's—today, they're like, "Oh, it's warm, it's gonna be warm on Wednesday, that should be earthquake weather."

You know? Like, if you live in southern California, there's earthquakes. If you live in the Bahamas, there's hurricanes. If you live, wherever there's, you know, Namibia, there's sand dunes. Everywhere on Earth, there's a different place, so.

00:53:05 Ross Host Different thing that's trying to kill you.

00:53:06 Terry Guest I've got—I really wanna do a documentary about gun violence. Because it's such a disaster in this country.

[Everyone responds affirmatively.]

I don't wanna make it political, just throwing spears, that doesn't help. People who believe that are gonna believe it, and just get mad. People who don't believe it aren't gonna watch it, right? So that—I wanna make something that kind of moves the needle. Otherwise you're just wasting your time.

[Ross and Carrie agree emphatically.]

I've got some other TV and documentary ideas. So, we'll see. And books, too much to do, not enough time to do it all.

00:53:36 Jannicke Guest Terry's a storyteller. I work with him to work on his emotions a bit more, because they're there. It's proven in his book, he does have emotions.

00:53:44 Terry Guest I have lots of emotions. I'm a very emotional guy.

00:53:46 Jannicke Guest The problem is he goes—and then we landed on Earth, and, oh, there's a few more things that happened between like, getting out to the International Space Station and then landing on Earth, so let's talk about that for a bit.

00:53:58 Ross Host So no shortage of ideas, no shortage of projects, all to make the world a better place and help people understand science a little better.

00:54:05 Terry Guest Yeah, that's an important—it's—I never realized how much of a foundation it was, until you see it under attack. Like, these diseases that were eradicated are now coming back, you know, cause guys aren't getting—

00:54:15 Ross Host The things you wouldn't think you would need to defend.

00:54:18 Terry Guest Right, that's the kind of thing. You know, one of the things they always say, you know, astronauts don't see borders in space. Let's just all hold hands and sing "Kumbaya". So, look, I was an air force fighter pilot for 30 years. I'm a realist, I'm not an idealist. I understand the world we live in, but that border thing is almost true, except for it's not.

I was in space for months, and I remember thinking, "What is that river down there?" It's in South Asia. There must be some bacteria that glows in the dark or something, because this thing goes on for a thousand miles, and that river down there is like, brown, and you can see it at night time.

[Ross and Carrie respond in awe several times.]

Well, it's not a river. It's the border between India and Pakistan, where the military DMZ is. It's like, a military border, they have ten thousand—I was reading about it. It's this big thing where it's all lit up at night time. It's a military border. You can see that.

And the one that stands out more than anything is the North Korea/South Korea border. The first time I flew over there, I had spent a year flying F-16s in Korea, and I looked down and I'm like, "Wait a minute, there's no ocean there. What's going on?" Well, it's not an ocean, because it's black. It's North Korea. And you see this, another one of these brown rivers, and it's the DMZ. Which cracks me up, because I don't know who gets to name these things.

00:55:24 Ross Host Demilitarized zone.

00:55:25 Terry Guest Right. But the most heavily militarized place on Earth is the demilitarized zone.

[Ross and Carrie laugh.]

So, you can see these borders. It's a real thing.

00:55:33 Ross Host That reminds me of *Doctor Strange*. "You can't fight in here, it's a war room!"

00:55:36 Terry Guest "There's no fighting in the war room!" So when I was doing nuclear weapons in the F-16, that was one of the movies we'd watch. Kind of this, um, joke.

00:55:44 Ross Host Oh, man. This has been fantastic. We could talk to you both forever. Uh, and who knows what other amazing secrets and stories we would find. But, how can people find out more, how can they follow both of you?

00:55:55 Terry Guest So, for me, I have a website, TerryVirts.com. A lot of the projects I'm doing on there. Astro Terry. You can find my Twitter and my Instagram and all that. So, TerryVirts.com is probably—

00:56:06 Ross Host V-I-R-T-S.

00:56:07 Terry Guest T-E-R-R-Y V-I-R-T-S. That's right.

00:56:11 Ross Host Excellent. Jannicke?

00:56:12 Jannicke Guest I have an Instagram, and a website, and getting people to spell Jannicke isn't exactly the easiest thing.

[Everyone laughs.]

But it is @JannickeLife.

00:56:20 Ross Host Okay, so J-A-N-N-I-C-K-E.

00:56:24 Jannicke Guest Oh, my goodness!

00:56:26 Terry Guest Ding ding, ring the bell!

00:56:27 Jannicke Guest Life behind that, and then you'll find me.

00:56:29 Carrie Host Great!

00:56:30 Ross Host Well, thank you so much.

00:56:31 Carrie Host Thank you.

00:56:32 Ross Host Well, that's it for our show. Our theme music is by Brian Keith Dalton.

00:56:36 Kara Host Our administrative manager is Ian Kramer. And I'm Carrie Poppy.

00:56:41 Ross Host You can find us on the internet at [Facebook.com/onrac](https://www.facebook.com/onrac), O-N-R-A-C, or on Twitter @OhNoPodcast.

Also, I know we left quite a cliffhanger with Terry and Jannicke talking about troubles over Antarctica, and we never followed up on that. Jannicke tells me that basically, the aircraft froze while they were flying. They were in midair, couldn't really do too much about it. It was -117 degrees Fahrenheit. So that was the problem, just in case you wanted to know. But they made it. They survived. Phew.

Also, you can find us at our home, [MaximumFun.org](https://www.MaximumFun.org).

00:57:17 Kara Host And they have transcripts now!

00:57:19 Ross Host That's right! Yeah, you can find transcripts of our recent episodes. It's really cool, you can watch and read along in real time. Very cool.

But you can also support us there if you want to support all of our investigations at [MaximumFun.org/donate](https://www.MaximumFun.org/donate). We really appreciate it. Thank you to all who support us.

Also, if you want to record a jumbotron for your loved one or for your worst enemy, you can do that on *Oh No, Ross and Carrie!* through us. We will say it for you, but most people do it for kind reasons. That's really the best thing to do. Anyways, that's at [MaximumFun.org/jumbotron](https://www.MaximumFun.org/jumbotron).

It looks like you're thinking of messages you could send to worst enemies.

00:57:55 Kara Host Yeah, to all my enemies. It could work out.

00:57:57	Ross	Host	It's worth it. And remember!
00:57:59	Jannicke	Guest	No matter where you are from and how many people tell you it's not possible, if you believe it's possible, go for it. Don't listen to anybody. Believe in yourself. And also...
00:58:11	Terry	Guest	Don't tell yourself no.
00:58:13	Music	Transition	" <i>Oh No, Ross and Carrie!</i> Theme Song" plays for a moment, then stops.
00:58:26	Promo	Promo	Jesse Thorn: This week on <i>Bullseye</i> , Lin Manuel Miranda on <i>His Dark Materials</i> , hip hop, and life after <i>Hamilton</i> . Lin Manuel Miranda: I know it's the first line of my obituary. So if that line is handled, then what else can I do with my time here? Jesse: It's <i>Bullseye</i> from MaximumFun.org and NPR.
00:58:46	Promo	Promo	Jesse Thorn: Hey, it's Jesse Thorn. We're very happy to announce that tickets for MaxFunCon 2020 will go on sale Friday, November 29th, at 11am Pacific. I also want to let you know, this coming year MaxFunCon 2020 will be our last MaxFunCon for the foreseeable future. For 2020 and beyond, we're going to be looking for ways to connect with more of you in person and spread the spirit of MaxFun farther than it's ever gone before. In the meantime, if you want to join us at the last MaxFunCon in Lake Arrowhead, June 12th-14th, you can find details at MaxFunCon.com .
00:59:26	Speaker 1	Promo	MaximumFun.org .
00:59:28	Speaker 2	Promo	Comedy and culture.
00:59:29	Speaker 3	Promo	Artist owned—
00:59:30	Speaker 4	Promo	—Audience supported.