

AirSpace Season 1, Episode 17

I Don't Want to Miss a Thing

Matt Shindell:

I don't want to close my eyes. I don't want to fall asleep, because I'd miss you babe...

Dr. Emily Martin:

And I don't want to miss a thing.

Nick Partridge:

Hey, you guys, you guys. Let's talk about Armageddon.

Dr. Emily Martin:

The movie Armageddon.

Nick Partridge:

Yes, the movie Armageddon.

Matt Shindell:

Yeah. Yeah.

Nick Partridge:

Welcome to AirSpace, the podcast from the Smithsonian's national air and space museum. We're your hosts. I'm with Matt Shindell, curator of planetary exploration in the department of space history, and Dr. Emily Martin, planetary geologist specializing in the cold cold moons of the outer solar system.

Matt Shindell:

And that golden voice you're hearing now is Nick Partridge. He is our enthusiast of all things air and space.

Nick Partridge:

Today on the show, we're talking about the movie Armageddon, not just because it's objective awesome.

Dr. Emily Martin:

We had heard that there was this myth or urban legend about people who started working at NASA, and they use this movie as a sort of test for new staffers.

Matt Shindell:

The story, possibly apocryphal, is that employees have to watch the movie and find all the inaccuracies.

Dr. Emily Martin:

Supposedly the record is 168 inaccuracies.

Matt Shindell:

Wow.

Nick Partridge:

So we could not confirm this story, and we did ask several people in positions to know. None of them had ever heard about it, and I certainly felt a little bit ridiculous asking senior staff at NASA about internet rumors.

Dr. Emily Martin:

Really wish we had recorded those conversations.

Matt Shindell:

Yeah. But we can confirm that Armageddon is subjectively awesome. It's wonderfully terrible, or terribly wonderful, or at least it's memorable.

Nick Partridge:

Yeah, watching the film does require a little suspension of disbelief. It was released in 1998, meaning that it's now 20 years old. So we thought it would be fun to watch it ourselves and see if we could find all of the mistakes, which is to say, even if the NASA story isn't true, we figured out a way to watch Armageddon and call it work. I personally watched it three times, including all of the commentaries from the criterion edition.

Dr. Emily Martin:

And in addition to all of that work, Nick also talks with Bobbie Faye Ferguson, who was the official NASA liaison on the film about why NASA would even work with the producers on this one, especially when some of the science is questionable.

Matt Shindell:

That's coming up next on AirSpace. You don't want to miss a thing about this episode.

Speaker 4:

What hit us?

Speaker 5:

Small asteroid fragments.

Speaker 4:

This morning. How big were those?

Speaker 5:

Those were nothing. The size of basketballs and Volkswagens.

Speaker 4:

This new one you're dragging, how big?

Speaker 5:

It's the size of Texas, Mr. President. It's what we call a global killer. The end of mankind. Half the world will be incinerated by the heat blast, and the rest will freeze to death in nuclear winter. Basically the worst parts of the Bible.

Matt Shindell:

The worst parts of the Bible.

Nick Partridge:

Basically the worst parts of the Bible. Armageddon is about an asteroid the size of Texas headed for earth. We discover it 18 days before impact, and NASA has to mobilize a plan to save the planet. The plan is to send oil drillers to the asteroid, to drill down 800 feet, drop a nuclear weapon, blow it up and split it into two pieces that will then miss earth. So who do they find to save the planet? Bruce Willis and Ben Affleck.

Speaker 5:

As long as it says Harry Stamper Oil of the rig, you will not disobey my rules, you got that?

Speaker 6:

Yeah, I do got it.

Speaker 5:

Right now I need to hear five words from you.

Speaker 6:

I'll never do that again.

Speaker 5:

I'm a fool. That was idiot. I mean, that was stupid.

Matt Shindell:

The characters, actually, despite the lack of amount of time that's spent on developing them, are very strong. I guess, because they draw from sort of archetypes and they all sort of wear their personalities on their sleeve.

Nick Partridge:

Kind of heroic American, iconic.

Matt Shindell:

And misfit.

Nick Partridge:

Right. But actually it's totally based on a real guy.

Dr. Emily Martin:
Wait, which one?

Matt Shindell:
Harry Stamper is based on a real guy.

Nick Partridge:
Harry Stamper is based on a real guy.

Dr. Emily Martin:
And Harry Stamper is the Bruce Willis guy?

Nick Partridge:
Bruce Willis, yeah. So he's the guy that-

Dr. Emily Martin:
He's the lead drill rig guy?

Nick Partridge:
... if they said it couldn't be drilled, this guy drilled it. He's worked in every environment on earth. Direct quote from Billy Bob Thornton in the movie.

Matt Shindell:
Yes.

Nick Partridge:
This movie was originally pitched as Red Adair in space. And Red Adair is the guy who sort of invented modern oil well firefighting. He was a bomb disposal tech in World War Two, and then he came back and he pioneered the use of firefighting at oil wells, but also capping blown out oil wells using high explosives.

Dr. Emily Martin:
And we're talking about the ones in the ocean, we're not talking about on land?

Nick Partridge:
Right. He put out a lot of the fires on oil wells in Iraq after the first Iraq war.

Matt Shindell:
Hmm.

Nick Partridge:
Yeah.

Dr. Emily Martin:

What's your favorite inaccurate moment? Can you pick a favorite?

Nick Partridge:

My favorite one is the one that wasn't on any of the lists. The one that I found and I don't think anyone else has called out.

Dr. Emily Martin:

So it's your favorite just because you think it makes you smarter?

Nick Partridge:

I think so. Also it's the very first shot in the movie. It's the first thing in the movie.

Speaker 7:

This is the earth at a time when the dinosaurs roamed a lush and fertile planet. A piece of rock just six miles wide changed all that.

Dr. Emily Martin:

Okay. So...

Nick Partridge:

We see the moon.

Dr. Emily Martin:

Mm-hmm (affirmative).

Nick Partridge:

Yeah. It's the near-side of the moon. It's our side of the moon, and it's facing away from earth.

Dr. Emily Martin:

Hmm. I was so focused on the plate reconstruction of the continents that I didn't even see it.

Nick Partridge:

Oh, yeah?

Dr. Emily Martin:

Yeah.

Speaker 7:

A trillion tons of dirt and rock hurtled into the atmosphere, creating a suffocating blanket of dust the sun was powerless to penetrate for a thousand years.

Dr. Emily Martin:

So the continents aren't in the right places 65 million years ago, including say the Andes mountains didn't exist 65 million years ago.

Matt Shindell:

My favorite happens a little later in the movie than the intro. Significantly later. It's after the crew of oil drillers have been minimally trained in astronautics. They send the astronauts up into space, and the first thing that they have to do is stop at the Mir space station, which they never actually call Mir.

Speaker 8:

Most shuttles will take off Tuesday at 6:30 PM. 67 minutes later, you're going to dock with the Russian space station to meet cosmonaut and drop-off, who will refuel the shuttles with liquid O₂.

Matt Shindell:

And it's inhabited by a crazy cosmonaut.

Nick Partridge:

Who's been alone for 18 months.

Matt Shindell:

18 months on Mir. So one of the things that they do as they dock with the space station is they use the thrusters on the space station to create rotation, which is then supposed to create a spin that will cause artificial gravity inside of the station. Mir never did that. That's not a thing that Mir did.

And also with a space station that small, you can't just rotate it and create uniform gravity throughout the entire station. You need a really big sort of station with a center point around which it then rotates.

Dr. Emily Martin:

You see that in 2001, A Space Odyssey.

Matt Shindell:

Right.

Nick Partridge:

As we touched on, yeah, in that episode. That's how they get the gravity.

Matt Shindell:

Yeah.

Dr. Emily Martin:

It's a big wagon wheel looking thing.

Matt Shindell:

So you get the impression that they were not about to create artificial zero gravity for this movie to film the scene, so they decided on a workaround where they would create really artificial artificial gravity-

Nick Partridge:
Artificial artificial.

Matt Shindell:
... so that everyone could just walk on their two legs around the space station.

Nick Partridge:
Yeah. So problems with the gravity. There's icicles in one of the corridors. First off, icicles? When did those form and how without gravity? So then there's the fact that the cosmonaut has been up there by himself for 18 months. That would never happen.

Matt Shindell:
No.

Nick Partridge:
There's no reason for it to have happened. But also he does a really dramatic somersault and lands on his feet when the NASA guys arrive. When astronauts arrived back from the ISS, and they've been up there for a series of months, they are not steady on their feet when they get home. They have to go through a lot of reconditioning. That guy did not do a somersault and land on his feet immediately upon experiencing gravity for the first time in 18 months.

Okay. So coming back to the other big eccentricity, we'll call it, maybe, to be diplomatic.

Speaker 4:
What is this thing?

Speaker 5:
It's an asteroid, sir.

Speaker 4:
How big are we talking.

Speaker 6:
Sir, our best estimate is 97.6 billion-

Speaker 5:
It's the size of Texas, Mr. President.

Speaker 6:
Yes, sir.

Nick Partridge:
Emily, what did you think about that asteroid?

Dr. Emily Martin:

I think there was a lot of things that were very cool about it.

Speaker 4:

Is this going to hit us?

Speaker 5:

We're efforting that as we speak, sir.

Speaker 4:

What kind of damage are we...

Speaker 5:

Damage? The total, sir. It's what we call a global killer.

Speaker 4:

My God.

Dr. Emily Martin:

Every time they show you one of those dramatic space scenes, where you see asteroid hurdling towards the earth, it's got a coma. Which if you've ever seen a comet, it looks like a fuzzy ball in the sky, and it's because comets have a lot of ice on them. They get really close to the sun, that ice melts, and it creates this thing called a coma. It's like a big fuzzy halo around the hard center, or nucleus.

So this asteroid has this coma shooting all around it, and plumes, and all kinds of things like explosively happening on it. And so it's essentially an asteroid that they've given all the characteristics of both an asteroid and a comet.

Speaker 5:

200 degrees in sunlight, minus 200 in the shade. Canyons of razor-sharp rock, unpredictable gravitational conditions, unexpected eruptions, things like that.

Speaker 6:

Okay, so the scariest environment imaginable.

Dr. Emily Martin:

The asteroid in this movie is its own character. When they land on the asteroid to start drilling, anytime they are outside of one of those two space shuttles, there are like weird bear noises that are happening in the background. This asteroid is a living creature, the way they portray it in the film.

Nick Partridge:

The asteroid scenes were filmed in South Dakota.

Dr. Emily Martin:

They didn't do all of that movie on a sound stage?

Nick Partridge:

No, no. The very first scene shot, the first day of principal photography was in South Dakota outside of Badlands.

Matt Shindell:

Oh, yeah, the Badlands.

Nick Partridge:

Yeah, that's where they shot the crash sequence.

Matt Shindell:

The minute they land on that asteroid, it becomes a classic Sci-Fi movie with a classic Sci-Fi set. That asteroid is beautiful, and it looks like it could have come out of 1950s Sci-Fi movie or something like that. Or out of the artwork of a space artists like Chesley Bonestall.

Dr. Emily Martin:

There are really dark, bladed, rocky formations.

Matt Shindell:

I think that this asteroid is sort of beautiful and in that sort of tradition.

Dr. Emily Martin:

The world that it creates to do this ridiculous task of drilling 800 meters through pretty much solid metal is pretty special.

Nick Partridge:

It was fun listening to the commentary of the scientists and astronauts who did work on the film, because they were always kind of very pithy about acknowledging inaccuracies, said, "Yeah, this asteroid may have had a little bit more of an attitude", which is a very '90s way of putting it, "than something that mother nature would actually send our way".

Matt Shindell:

So I think one of the cool things about this movie is that especially during the launch scene, you're on NASA property, everything is very real. You are seeing things that look pretty spot on to what you see when you watch footage of launches, of how the astronauts get geared up and suited up and sat into the shuttle chairs, and everything like that. So NASA clearly participated heavily in sort of making it look realistic.

Nick Partridge:

This movie filmed in a lot of places that had never been filmed before. So the neutral buoyancy lab in Houston, for instance. That's the real neutral buoyancy lab where astronauts train underwater to learn how to operate in zero G.

And Ben Affleck and Bruce Willis are the only non NASA personnel who have ever put on the suits and been in the neutral buoyancy tank. Like you see him in the astronauts suit, that's a real \$3 million space suit. When you see shuttles in here, by and large they're real shuttles.

Matt Shindell:

Right.

Nick Partridge:

When Bruce Willis was walking around underneath it being dramatic, he's not putting his hand up because those are real tiles above him.

Matt Shindell:

Yeah.

Dr. Emily Martin:

So if there's 168 inaccuracies in this movie, and NASA was to some degree supporting the making of this movie, how? Why?

Nick Partridge:

All right.

Matt Shindell:

Let's wait, take a step back even further than that. Not just the inaccuracies, but this movie kind of shows NASA to be not up to the challenge, right? They have to bring in outsiders, and even then the outsiders have to defy every rule that NASA and the government gives them in order to get the job done.

Nick Partridge:

So NASA did provide an almost unprecedented level of cooperation on this movie. And I talked to Bobbie Faye Ferguson, who was the NASA liaison on the film, about why the agency chose to be involved and what it was like bringing a big movie production to Johnson and Kennedy space centers. As it turns out, Bobbie is no stranger to Hollywood herself.

Bobbie Faye Ferguson:

I actually, I was on Dallas, the TV series. Dukes of Hazard, Evening Shade, Designing Women. I had a nice part on Designing Women, I played a hooker.

Nick Partridge:

Bobbie, how did you get involved working for NASA?

Bobbie Faye Ferguson:

So I was told that they had so many film and television request for NASA's assistance, that they needed somebody with a film and television background.

Nick Partridge:

What was your job at NASA?

Bobbie Faye Ferguson:

In the very beginning there was no rules, no guidelines on how to do it, or how to let them shoot on location, or how to review a script. So we wrote a management directive, which was really the policy on how NASA intended to work with film and television productions. We put in there we believed in feasible fiction.

Nick Partridge:

So what is feasible fiction mean?

Bobbie Faye Ferguson:

In the future it could be possible. It could happen. So that gave us some leeway in order to participate in films, for example, like Armageddon.

Nick Partridge:

So there will always be lawyers, certainly.

Bobbie Faye Ferguson:

Yes.

Nick Partridge:

But you also had scientists review the script. Do you remember anything that the scientists particularly balked at?

Bobbie Faye Ferguson:

Well, a couple of the scientists said, "We would never land on an asteroid". However, as you know, not too long ago, and I can't remember the specific year, did land a craft on an asteroid.

Nick Partridge:

In 2001, only four years after the movie Armageddon was released, that asteroid was called Eros. NASA successfully touched a spacecraft down on it.

Speaker 10:

And here's the spacecraft coming down to the asteroid. The thrusters are firing and it's slowing down nicely. Here we're doing a little turn to reorient. Very slight bounce. This is the first time that any spacecraft is landed on the small body.

Bobbie Faye Ferguson:

That's a great example of feasible fiction.

Nick Partridge:

Armageddon was filmed in many real NASA locations. Tell us about that.

Bobbie Faye Ferguson:

Yes.

Nick Partridge:

There was the gantry, for example. That's the bridge structure that the astronauts used to access the shuttle on the launchpad. That's a really sensitive area, and very few people have access to it. And you guys let movie stars up there?

Bobbie Faye Ferguson:

Yes. They couldn't go anywhere off of where exactly we were filming without an escort.

Nick Partridge:

And they got to film inside the vehicle assembly building, or VAB?

Bobbie Faye Ferguson:

Yes.

Nick Partridge:

That's this huge hangar space, right?

Bobbie Faye Ferguson:

Correct.

Nick Partridge:

Like a really big airline hangar times 10 stood on its end. How do you describe them?

Bobbie Faye Ferguson:

People walk into the VAB and they look up and they don't stop looking up. They say it's so tall that it can actually sometimes rain inside. Clouds can form. I did see a cloud. But they filmed at the VAB, they filmed at the pad, they filmed on top of the gantry. They filmed at what they call the shuttle landing strip, and in one of the rocket engines of the Saturn Five.

And there were certain instances that people smoked and we had to quickly put all of that out and remind people, you cannot smoke anywhere in the property of the Kennedy space center.

Nick Partridge:

How did the NASA crew and the film crew interact? Was anyone star struck on either side?

Bobbie Faye Ferguson:

Yes. On both sides. I mean, it could have been Michael Bay, it could have been Bruce, it could have been Jerry Bruckheimer. I was actually asked by Mr. Bruckheimer to take every single producer that came in to the location that wasn't there on day one, to take them on a private tour of the Kennedy space center because they were so in awe.

The actors were always impressed with the astronauts. Astronauts were always impressed with the film stars, to a certain extent. But the film crew and stars were always more excited and impressed to be at the Kennedy space center, Johnson space center, wherever they were filming.

Nick Partridge:

What was your most vivid memory of filming Armageddon?

Bobbie Faye Ferguson:

Well, being on top of the VAB at like three o'clock in the morning to see the shuttle launch.

Nick Partridge:

So the crew was invited down to film a scheduled launch at Kennedy space center?

Bobbie Faye Ferguson:

Yes. And having to remind the director, actually, Michael Bay and the director of photography, "Don't forget to film". You could hear the crew whispering, "Oh my God. Oh my God. Holy cow". Because it is... The nighttime launch is extremely exciting. But to also be on top of the VAB, having just lived through the earthquake in California in '94, to have that VAB shake like an earthquake. That is a vivid memory that will never leave me. That is one of my most exciting memories of filming of Armageddon.

Nick Partridge:

So Bobbie, I have to ask, what was in all of this for NASA? Why make a movie that requires this suspension of disbelief for some of the more outlandish moments, shall we say?

Bobbie Faye Ferguson:

Anything that sparks imagination in young people. NASA had its best name recognition after Apollo 13 came out. And working with film and television, it sparks imagination, creativity, dreaming, in young people.

Dr. Emily Martin:

I get what Bobbie is saying about sparking wonder and trying to engage people's imagination. And when I was watching Armageddon again, I don't think I had seen it since it had come out. And I sat down with the intention of writing down all the things that I thought were crazy or inaccurate, but you kind of get swept up. I mean, I was more invested in this movie than I had originally thought that I would be.

Matt Shindell:

Yeah. And I actually realized that a lot of the things I wrote down thinking they were untrue when I watched the movie, when I looked into them, actually a few of them turned out to be true. I was a little embarrassed by that.

Nick Partridge:

Armageddon is based on the premise that an asteroid the size of Texas is hurdling towards earth. So I got to ask, Emily, basic question, are there any rocks the size of Texas in the solar system?

Dr. Emily Martin:

Sure. Enceladus is the size of Washing State. So Saturn's moon, Enceladus.

Nick Partridge:

But we saw Enceladus before 18 days ago.

Dr. Emily Martin:

Well, that's true. Yes, of course. But something that large would have been observed well before then. NASA actually has a very well-developed near earth object, the NEO program. And as a human, you would have noticed a big glowing object in the sky. And by big and glowing, I'm talking like the brightest star in the sky that you've ever seen, you can still see when you're in Manhattan. You can still see it when you're in Washington D.C. You can see it in a city sky.

Nick Partridge:

And that brings us to a part of the movie that Armageddon kind of got right. So the giant asteroid that no one notices until it's 18 days away from earth, that's wrong. But the ideas that the scientists in the room propose to deflect or destroy the asteroid, those are legit.

Speaker 11:

Our first feasibility plan was to use a spread focus laser generator to heat the object to the point of fracture.

Speaker 5:

That's like shooting a BB gun at a freight train, doc.

Speaker 6:

Some of us have got this idea. We want to land a craft, deploy solar sails. You'll have a great big canopy. Solar winds will be caught by these Mylar sales. Come on guys, we've got to come up with something realistic here. We've got 18 days.

Nick Partridge:

Those were all real ideas, and they would all probably work plus or minus if we had seen it in enough time. Like the Mylar sail would have been enough if we could construct something that large.

Dr. Emily Martin:

Right. So in addition to the near earth object mission program that they've got going on at NASA right now, I mean they're constantly making observations of the sky, looking for these kinds of issues. It's been proposed the ARM, the asteroid redirect mission, and thinking about different ways in which we could capture an asteroid and redirect it, hence the asteroid redirect mission.

Nick Partridge:

There's one where you just paint one side of the asteroid a darker color, and from the solar radiation, it will warm one side and just gradually shift the course.

Dr. Emily Martin:

In that sense of the idea, the premise of Armageddon, this is a real danger. I mean, earth gets struck by meteorites all the time.

Nick Partridge:

Oh, yeah.

Dr. Emily Martin:

If you remember the one that was caught on everybody's dash cams in Russia a few years back.

Nick Partridge:

Mm-hmm (affirmative).

Speaker 12:

Bizarre story from Russia. 500 people have been hurt by a visitor from space.

Speaker 13:

There were more than 500 people injured by broken and shattered glass.

Speaker 12:

The result of an explosion in the lower atmosphere.

Dr. Emily Martin:

It happens all the time. We know from science, because science is cool, that you should expect a certain number of meteorites to hit a planetary body of a certain size, and that size should have a certain frequency. So we should know that we're "due" for a large impact.

Nick Partridge:

I heard that an object the size of the impactor that killed the dinosaurs should hit earth, on average, once every 10 to 50 million years. And it's been how long?

Dr. Emily Martin:

65 million years. Although I think the new estimate is 58 point something million years, but let's go with 65.

Nick Partridge:

In either case, we could be due.

Dr. Emily Martin:

Right. And that's what I'm saying. If you're a statistics nut, this makes you roll your eyes because you're like, "Well, we can calculate how frequently it should happen, but it's nature".

Matt Shindell:

Right.

Dr. Emily Martin:

Which loves to defy statistics.

Matt Shindell:

Right. It's just like when you think about how statistics apply to your own life and your own health, you might be some percentage more likely to get something because you eat bacon or you drink alcohol, but you still might end up living to 120 years old despite those statistics. Right?

Dr. Emily Martin:

Right.

Nick Partridge:

So what was it like rewatching this movie 20 years later, assuming that none of us had seen it since it came out in theaters? Not true, I watch it all the time.

Matt Shindell:

Yeah, I've probably seen it at least once between the first time I saw it in the theater and this rewatching. But I have to say, I think one part of the movie that I appreciated more now having taught courses in history of the space program, is sort of the astronaut screening process that they put this group of drillers through, and how it draws on that montage from the right stuff and all of the psychological tests and physical tests that they put the astronauts through. But here it's such a send up, and it's so hilarious.

Nick Partridge:

I kind of feel the same way about the walkout to the launchpad. It's kind of in slow motion, and you've got that great shot where the guy in the white lab coat says, "Astronauts", in a really low... Like even the voice is in slow motion. It's similarly over the top, but really, really super compelling.

Dr. Emily Martin:

I liked the movie the first time around, but I was like, well, 20 years ago in 1998, I wasn't in high school I don't even think. Certainly never occurred to me that I was going to be doing what it is that I do now.

Nick Partridge:

Now that you're more space adjacent, do you appreciate the raw, raw nature of it a little more?

Dr. Emily Martin:

Oh, so much more. Getting to watch this movie from that perspective of getting to hang out with you space nerds all the time, I-

Nick Partridge:

A new found space nerdiness would certainly make the fiction part of feasible fiction more obvious, but maybe also more fun.

Dr. Emily Martin:

I was going into it with so much more context, that I think I was able to be a little bit more critical, but also more able to enjoy what they did.

Nick Partridge:

There have been a couple of moments working here where I kind of felt like there was dramatic music and I was walking like in slow motion down a hallway, like they do.

Dr. Emily Martin:

Well, you know what I do?

Nick Partridge:

Hmm?

Dr. Emily Martin:

You come into the museum before it opens, and you play Uptown Funk really loud in your headphones as you walk down through the rockets. You feel like you own it.

Nick Partridge:

That's it for this episode of AirSpace. We'll be back in two weeks with a new episode.

Matt Shindell:

AirSpace is produced by Katie Moyer, Jocelyn Frank, and Lizzie Peabody.

Dr. Emily Martin:

Mixed by Tarek Fouda. Special thanks to Jason Orfanon, Genevieve Sponsler, and John Barth.

Nick Partridge:

This episode was supported by PRX and the Alfred P. Sloan Foundation, enhancing public understanding of science, technology, and economic performance. More information at sloan.org.

Matt Shindell:

You can follow us on Twitter at Air and Space, or find us on Instagram at AirSpace Podcast.

Nick Partridge:

Because you don't want to miss a thing.

Matt Shindell:

Don't want to miss a thing.