Okay, here we are at the back of the ATV.

We're at the very back end of the space station.

We're going 18,000 miles an hour in this direction, so I'm going to kick off and we'll do a quick fly through of the staff at the International Space Station.

We'll pass some fun things on the way.

Dinner table again.

Got Max!

Ahh!

[Laughter] Very difficult to squeeze throughout here, especially with Max's here.

And now we're going through the FGB.

It looks like we got a nice, nice flight path here.

Should be able to make it.

Alright, down in the node 1, station's going to open up! Butch, go high!
Foot tag, quick aileron roll, through the lab, into the ball form.

A little spin into node 2, over Alex's crew porters, and here we are at the very front end of the International Space Station.

Still going 18,000 miles an hour.

Eli Richardson; ok he asks, "Do they plan to deorbit Space Station?"

Yeah, what are you going to do about that?

Tell him.

They're going to deorbit Space Station at the end of its life whenever that is.

And in concept, we can keep up flying for a long, long time.

We have airplanes that were designed and built in the mid-1950s...

The T-38s that we...

The T-38s that we fly, yeah.
late 1950s, early 1960s.

They were designed in the 1950s, built in the 1960s and you just keep rebuilding the airframe, rebuilding the engines, upgrading the avionics; you could fly these things basically till you run out of gas.

In concept we could do that with Station and we could keep the Station running for as long as we like basically up until we reach the endpoint of the structural elements on Station.

And when that time does come, we will have to deorbit it.

Well we're going at least until 2024.

Yeah, we're going to 2024.

Ok, so like with Hubble what we did on our mission is we put a docking ring on the bottom of the telescope.

Yeah.
Because we want to ensure a guided entry.

When the thing is done, we're going to say maybe 20-30 years from now.

The science may be done; hopefully we have a lot more science with Hubble but even if the science stops, the spaceship can still continue to orbit, right...

Yeah, yeah.

just by orbital mechanics; they're just going to come in.

So we have a docking ring on the bottom of Hubble for a rocket motor -- you know one of them has to be there, it could be an automated thing -- dock with it and guide it so it doesn't hit anything on the way down.

So do they have anything like that for Space Station because that's a big thing?

Yeah, yeah.

So when it deorbits, it's going to be a controlled deorbit I would think?

It will be a controlled deorbit.
We'll use a Russian progress vehicle and instead of reboosting Station, you'll point the rocket thrusters the other way...

To slow down.

You'll slow down...

It's like putting the brakes on when you're going to come in.

...and then the atmospheric drag will take it in.

And they'll probably...so they'll probably do that so that the major part of reentry is over the ocean?

Yeah, probably the Pacific.

It'll probably shoot for the Pacific.

The Pacific is a really big ocean.

Yeah.

That would be the right place to put it so in case anything survives coming in.
Yes.

So, this is the Nile coming up right?

This is Nile.

This is the, green one.

So, you got a great shot of the Nile.

It's very clear over...

Beautiful day today.

Yeah.

So, there we got, we got coming up on the, the Red Sea.

Yeah, this is the Red Sea.

Yeah.

And that's Suez Canal over there.
You can probably point that.

Oh yeah.

Yeah.

There you go.

So, Red Sea and just.

Suez Canal.

East of Cairo, Suez Canal.

Very thin as you can see there.

We're passing just across the southern coast of Ireland into the Bristol Channel and then east to right over London.

It's supposed to be pretty cloudy, so the channel may be clear, and London itself might be clear, so we'll see.

Here's the Strait of Dover.
You can see all the run off.

00:05:45,300 --> 00:05:49,990
Let's go overhead.

00:05:49,990 --> 00:05:50,990
It's coming in view.

00:05:50,990 --> 00:05:52,490
And see London is in that, see that area right there kind of.

00:05:52,490 --> 00:05:53,490
Where that bay is?

00:05:53,490 --> 00:05:55,269
The bay is, yeah.

00:05:55,269 --> 00:05:56,599
That's London.

00:05:56,600 --> 00:06:02,220
Let's see if we can actually see anything in London.

00:06:02,220 --> 00:06:03,960
There it is.

00:06:03,959 --> 00:06:06,589
So, we're almost directly overhead.

00:06:06,589 --> 00:06:07,589
Yeah.

00:06:07,589 --> 00:06:11,169
Finally catching a break through, from the rain.

00:06:11,170 --> 00:06:15,110
Look closely.

00:06:15,110 --> 00:06:25,110
See Sicily and Italy, coming over the horizon.
Give you a close -- zoom in on the volcano.

Beautiful; and then the easily recognizable boot of Italy coming into view.

Looks quite a bit different than it does on maps from up here but there it is.

There's the boot of Italy.

I've been to Italy just one time but I plan on going back there soon.

My family emigrated from Italy about a hundred years ago, my grandparents and great grandparents.

Hang off our left side, we're going to be losing it behind the structure pretty soon.

There's Greece, had a good friend from Greece, growing up; excellent food.

And most of Europe has excellent food.

Yep, that'll be the Bay Area and then if you come just, San Francisco is right of trajectory.

-- lots of trajectory.

Has a great shot of San Francisco.
So interesting enough, right there is Edwards Air Force Base; that's another place where I lived.

You can see here, those big, dry lakebeds; that's also where Palmdale and Lancaster are which, where the space shuttle was built.

Built down there.

Yeah.

Okay, that should be Houston.

Should give them the camera.

Looks like a beautiful day.

I just talked to my wife at home, just 15 minutes ago.

She said the weather's beautiful down there.

There it is, Houston, Texas.

Chicago?

Yeah, we got the bottom of Lake Michigan.
Did you get it?

Here's Chicago, kind of swinging off to our left.

All right, so you got -- there's Long Island.

There's New York City, looks a little snowy down there.

It does look snowy, looks like a lot of snow down there.

Nice, clear day, probably very cold.

Long Island and there's Connecticut, my home state, my hometown of Waterbury.

That little, that?

It's not even -- you can't even see it it's so small.

Let's give New York City one more close-up of New York City.

New York, are you ready for your close-up from the International Space Station?

Looking good.
Enjoy your Friday night.

friday night in New York.

It's the end of January, and soon I'll be getting ready to leave.

I came up here last September, six weeks before Rich and Koichi.

So my time is nearly up.

It's going to be good to see my wife, Julie, and the boys -- Ryan and Lucas.

We are exactly six weeks away from when Mike will be landing here back in Houston, not that I'm counting.

Starting to become real Mike's going to be home soon.

So pretty excited about that.

I can't believe it's almost here.

Before launch I coached the men Lacrosse and hockey.

Can you see?
Yep, sure can.

Where's Lucas playing now?

I can't tell.

He's center.

He's racing down Mike right now.

Fortunately, we have a video link.

So I've been able to keep track of their games and be there in spirit if not in person.

Oh, no.

That's all right.

Keep fighting back.

It was really fun because Mike's son had to take a penalty shot and actually scored.

So that was fun for Mike to see.

It was really exciting for him.

He feels a little bit more connected to the kids.
It's hard.

I know he misses that stuff a lot.

Oh, yeah.

About that time.

Here we go.

We're not sure if we're going to make it out today, but looks like we're a go.

We're going to rent down your place real soon.

Don't worry about it.

Yeah?

I cleaned it, so it should be ready to go.

You getting excited, Greg?

I'm getting excited.

Mike Hopkins, NASA astronaut, giving a quick wave farewell there.
And physical separation confirmed.

185
00:12:17,230 --> 00:12:18,230
Okay.

186
00:12:18,230 --> 00:12:19,230
Thanks, Oleg.

187
00:12:19,230 --> 00:12:33,850
Thanks for getting me home.

188
00:12:33,850 --> 00:12:50,220
That's so wild.

189
00:12:50,220 --> 00:13:02,899
Kinda push it in.

190
00:13:02,899 --> 00:13:03,899
Three.

191
00:13:03,899 --> 00:13:04,899
Two.

192
00:13:04,899 --> 00:13:05,899
One.

193
00:13:05,899 --> 00:13:06,899
Oh no!

194
00:13:06,899 --> 00:13:27,289
Made it out the other side.

195
00:13:27,289 --> 00:13:58,569
..Little too hard

196
00:13:58,570 --> 00:14:00,110
That is wild.

197
00:14:00,110 --> 00:14:06,310
I think it’s going to stay in now...

198
00:14:06,309 --> 00:14:35,119
Yeah, yeah got to get it from going back down
Ha ha, you are being assimilated by this...

Pull out quickly, ah dude!

It's just gonna get worse.

This is amazing!

Look at that, whoa!

Holy Smokes, oh my gosh!

Absolutely fascinating!

Let's see another one.

Oh, here's one from Peter Manley.

"Would a balloon pop in space?"

So this is interesting because if you had...a balloon would pop if you blow it enough.

Well a balloon will pop inside the Station...

Right.

Right.
because I've done that, right, because I brought some balloons for my kid's birthday celebration

and...

I didn't know that.

I accidently popped one and they go "BANG!"

Did you get in trouble for it?

Did your kids complain about that?

No, they didn't see it.

They didn't know about it.

But anyway, so...

Here's dad doing his best to have a birthday party in space and by mistake one balloon goes and...

Yeah.

it ruined the whole party.
Yeah.

Oh, but it's neat to blow a balloon up and then let go of it and it goes [inaudible sound]...

Oh, cool.

Yeah.

But that's all your...that's propulsion there.

Yeah because it doesn't have the effects of gravity.

So the only thing that's...

It doesn't go in a parabolic arch...

So it just...

it just goes and then it just stops.

That's great!

So you know it doesn't fall to the ground?
Yeah, it doesn't fall to the ground.

Alright, cool.

But in the vacuum of space, like out of sight.

I'm wondering yeah if that's what he means that because you have less...you have less pressure because it will expand.

Yeah, well I think what will happen would be it would just keeping expanding and expanding and then it would rupture on its own.

Right.

I think similar to like a bag of potato chips in an airplane.

Yeah.

When you go up on an airplane, you're at less pressure and the bag becomes inflated.

Yeah, yeah.

I wonder how...how quick do you think it would
happen?

253
00:17:20,500 --> 00:17:21,500
I think it would happen pretty quick.

254
00:17:21,500 --> 00:17:22,500
I think it will happen real quick.

255
00:17:22,500 --> 00:17:23,500
Yeah, you would get an airlock.

256
00:17:23,500 --> 00:17:26,568
Say in space, in the vacuum, and yeah that thing would go quickly.

257
00:17:26,568 --> 00:17:27,599
Ok, let's see...