station this is Houston are you ready

for the event

Houston this is station we are ready for

the event WBO I radio this is Mission

Control Houston please call station for

a voice check station this is WBZ radio

how do you hear me

WBO I in Fort Wayne I think we hear you

loud and clear how do you hear me on

board the International Space Station

loud and clear you guys you guys sound

great alright commander Kevin Ford and

flight engineer Tom Marshburn thanks

very much for being with us today you're
Welcome great great to have you on board.

Tom and I have put in almost a full day already of work and we get to take a little time out once in a while and talk.

to folks on the ground so it's it's great to be with you.

we're here in the Destiny laboratory and doing various kinds of things.

today some science going on and some maintenance going on and we're happy to take any kind of questions you might have about what we're doing up here well.

commander Ford let's start with you tell us about the mission of expedition 34.
what are you an engineer Marshburn doing up there

well the whole purpose of the space station has always been to do as much science as we can the microgravity environment really zero gravity if you will is it's a very unique environment to do things that scientists in many cases can only imagine doing on earth science with with fluids for example fluid dynamics looking at bubble dynamics doing Studies on the way bones lose and construct their mass we do some of that right now in the
Japanese laboratory we can use this as a
testbed for spacecraft development we've
just been doing some stuff with robotic
li refueling spacecraft using using
spaceships that might fly up to a
satellite that's already in orbit and
refuel those and we have lots of
experiments on the outside looking at
the universe also looking nadir toward
the ground looking at the earth that we
aren't involved in but on the inside
there are also hundreds of
experiments that we are involved in
everyday combustion in the zero-gravity
environment and material science going
on right above our head literally today

so just a lot of things that scientists want to do in this low gravity environment and we're up here to do as well certainly no shortage of science to be done on the station out there it sounds terribly exciting engineer Tom Marshburn I want to bring you in can you tell us a little bit about the daily life on the ISS well we've come a long way in our space program the daily life is nice obviously we're isolated up here in our space station however we've got great
food we've got plenty to drink and lots

of busy work there good work to keep us

busy and that's really great for keeping

mental health as well so we have a

little bit of time off when we do have

some time we'll look out the window and

that's usually how we spend our free

time take a lot of photographs the view

of the earth obviously is is just

stunning and it completely captures our

attention whenever we have a free moment

have any culinary favorites on the menu

maybe maybe special dishes that you'd

you'd prefer over over certain others
well one thing we prefer is fresh food

we miss it a bit because we don't have

any except when your cargo vehicle arrives and so we just got some fresh

apples today we've each enjoyed one of

those other than that tortillas are a favorite item I put anything on it you

want my personal favorite is beef

brisket but there's all kinds of stuff

up here we also get some food supplied from the Russian side and that we've enjoyed that as well a lot of us have I

think this romantic idea about Space Flight it's one of those jobs you know
we dream of his kids growing up I

certainly did but I I know you won't you

guys go through years of training before

ever making it into space but is that

are there still good surprises that that

you find in day to day life up there

well the sense of wonder I think is even

increased when you get up here I

remember the first time I reached orbit

in a space shuttle and the first thing I

thought of I was I was a pilot for

discovery and very busy with all my

technical duties and as soon as we got

to main engine cutoff and we were in
orbit and at zero-g I absolutely could not believe what we had just done I just thought the engineers who designed this really pulled this off you know because you know what happens you read about it you see it on on film and so forth but when you really do it yourself you really can't believe that you were just accelerated 2:17 and 1,500 miles an hour and you’re suspended in microgravity and you’re orbiting the Earth and you can see it all down below you so the Wonder is only increased the realism though is is something that
day to day things like the hygiene that you have to do in space working in space working in all corners working in a closed environment and having to really maintain the systems you have with help from the ground of course huge help from the ground instruction but happened to put your hands on everything to keep the ship running and just working in this very it's it is a difficult environment to work in the training to get here is also very difficult so all along the way you do put in some some blood sweat and tears to get here but it's it's doubly
worth it when you get here and really
get to see what what living in space is
like commander Kevin Ford you're a Hoosier boy and part of a long long line of Hoosiers and Midwesterners who have helped kind of build and expand our knowledge of space I have to ask do you think your roots in this part of the country helped you get get excited about space or or help to get you ready for this type of work well I think so there were a few things in my family history that destruct my interest in aviation for example and
looking skyward the kinds of stuff my

brothers were interested in is kind of

what what you know got me interested

also but I think you know we have a lot

of technical history in Indiana a lot of

great a lot of astronauts for example

went to Purdue and people here there I'm

from Indiana and that I'm an astronaut

thing oh you went to Purdue and I I I

went to Notre Dame myself but you know

Purdue has this very rich history and I

just think that part of the country the

work ethic and the study and and perhaps

it's the Midwestern education that

inspired me so I think that was all
really strong and kind of maybe is why I
took me down this path so I still see it
strong today I know education is just
really big focus for Indiana for the for
the legislature down in Indianapolis and
it's it's really a wonderful part
of our Hoosier State
you
a station this is Houston ACR we lost
that client please stand by we're going
to reconnect the phone line
okay copy that no problem
you
and station this is Houston ACR will try
to reestablish that first client we're

going to pass you over now to News 14

Carolina please stand by for a voice

check from them

okay going over to News 14 happy that

station this is Sean Flynn with News 14

Carolina can you hear me

read you loud and clear this is Tom

Marshburn and Kevin Ford

excellent welcome gentlemen

first commander Ford's you've been there

since October dr. Marshburn you arrived

in December how are both of you

adjusting to your time and space and are
you getting used to the Sun rising and setting 16 times a day

well commander Ford's been here a couple months before we arrived but I think Chris Hadfield myself for adapting quite well it takes the body about a month to get used to the zero-gravity I'd say and about that long maybe a little longer to get used to the station environment where everything is located and how the operations run despite all the training the reality is always offers lots of new things new opportunities a lot of things to learn but we're in full force now and
getting a lot of work done and we're

00:09:20,879 --> 00:09:27,929
really happy up here for both of you

00:09:26,100 --> 00:09:29,610
your previous experience in space was

00:09:27,929 --> 00:09:31,319
measured in hours now we're talking

00:09:29,610 --> 00:09:34,579
months what's the biggest difference in

00:09:31,320 --> 00:09:34,579
how are your bodies holding up

00:09:37,879 --> 00:09:43,709
well I've been here about a hundred and

00:09:40,318 --> 00:09:45,649
ten days now and it is a completely

00:09:43,708 --> 00:09:49,498
different experience no doubt about it

00:09:45,649 --> 00:09:51,509
the the space shuttle flight was was

00:09:49,499 --> 00:09:54,869
trained for and very well choreographed

00:09:51,509 --> 00:09:56,850
before you come there are hopefully few

00:09:54,869 --> 00:10:00,629
surprises on a 14 week shuttle flight

00:10:00,629 --> 00:10:04,860
before in simulations and I had made
notes and those procedures about what I
was going to do and up on space station
day-to-day life and week to week can be
very different very surprising you
really know never know what's coming
your way in terms of you know maybe
systems malfunctions and and fixing
things up and that sort of thing so it's
a different kind of mindset coming up
here for a long long duration flight and
then of course just live in here when
you when you set up camp you know it's
not a temporary sleeping bag you know
you're gonna you're gonna be here for
months on end and you got to make

yourself comfortable learn to do things

efficiently I'm still learning things

Tom and Chris they're teaching me things

in the space spacecraft to make my my

days in life more efficient and it's

just kind of a chance to really learn to

live in space and you really do adapt to

the to the different dimensions for a

while you start to to try to look at

things in three dimensions and find new

ways to do things and then after a while

you just automatically do after a few

months so it's it's a very interesting
thing to do it's a very strange and novel environment but when I loved spending time in well I think you guys are tossing that Apple around you had a resupply ship in there or yesterday with three tons of supplies any specific thing you were on there you were looking forward to most well it is full of hardware there are a lot of important things are gonna keep our our vital stations vital functions going but also experimental hardware we're always excited about that when that comes up there's a lot of a lot of
work to be done and in some ways the

00:11:37,360 --> 00:11:43,060
space station is assembly line something

00:11:39,159 --> 00:11:46,480
has come up we work with the with the

00:11:43,059 --> 00:11:48,129
experimental hardware with materials and

00:11:46,480 --> 00:11:50,860
such that come up and then we were able

00:11:48,129 --> 00:11:53,189
to bring it back down on our Soyuz so we

00:11:50,860 --> 00:11:56,050
were able to get a rapid turnaround of

00:11:53,190 --> 00:11:57,610
experimental results and that's exciting

00:11:56,049 --> 00:11:59,259
we probably each have a little bit of

00:11:57,610 --> 00:12:00,940
bonus food a little bit of extra food

00:11:59,259 --> 00:12:02,740
that we like on there and as you saw

00:12:00,940 --> 00:12:04,180
just a little bit of fresh fruit that

00:12:02,740 --> 00:12:06,250
they throw in the hatch right before it

00:12:04,179 --> 00:12:08,789
launches and so we get to enjoy that and

00:12:06,250 --> 00:12:08,789
that's very special
dr. Marshburn we're monitoring your Twitter feed you're seriously in the Twitterverse you've taken some beautiful pictures up there including the North Carolina mountains and the Outer Banks what has been your favorite part and have you been able to identify your hometown of Statesville or Davidson College where you got your physics degree or Wake Forest where you got your doctorate and medicine well the Southeast United States is very unique and where I grew up in North Carolina and where you live now is
a very unique place on the planet and

one of the nice things about it is it's

it's so green and so verdant there even

in the wintertime that's a little bit

hard to pick out the cities I have seen

Charlotte I have seen some the

surrounding area and I'm gonna try to

get a picture at night so I can say that

it I can pinpoint it exactly but it's a

beautiful place there and we love to

love to catch it as we go across the

Piedmont area it's a little bit more

rare than I ever realized before it goes

by fast when we cross it as on our
orbital track but we all have our favorite spots I love mountains I love the southern part of South America the Patagonian Mountains and the Himalayas when we go across there that's suppose that we all have our favorite spots that we love to look at only wish I could get some of the get a view of that you know our parent company Time Warner Cable is heavily involved in the connect a million Minds movement basically we're trying to get more kids involved in science technology and math how critical were these areas of studies
for getting you where you are today

00:13:47,419 --> 00:13:51,870
well one thing astronauts frequently

00:13:50,070 --> 00:13:54,390
tells students and it's it's a very true

00:13:51,870 --> 00:13:57,419
statement is first of all you fall in

00:13:54,389 --> 00:14:00,659
love with something and studying hard

00:13:57,419 --> 00:14:03,120
and taking a wide breath types of

00:14:00,659 --> 00:14:04,829
courses helps you in that regard if

00:14:03,120 --> 00:14:07,320
you're curious if you fall in love with

00:14:04,830 --> 00:14:09,629
something then I would use the time in

00:14:07,320 --> 00:14:11,129
school to get really good at learning

00:14:09,629 --> 00:14:12,929
how to learn and learning how to learn

00:14:11,129 --> 00:14:14,279
anything but particularly the subject

00:14:12,929 --> 00:14:16,409
that you love and if you love it you'll

00:14:14,279 --> 00:14:18,299
do well in it but maintaining a high

00:14:16,409 --> 00:14:20,579
level of curiosity doing as well as you
can in school so that you have the tools

you need then you're on your road to

becoming an astronaut if that's what you

want to be up here we're learning

every day it's a skill that never

goes away particularly in this type of

job so I highly encourage students to

fall in love with something look around

and then get really good at learning how

to learn and there's questions for one

or both of you this missus mission is

being called a beehive of activity can

you explain some of the experiments

you're conducting so that we can
understand it and how they impact us
down here
well yesterday I did an experiment
called Kappa capillary flow experiment
we just call it CFE for short because we
love acronyms at NASA and this
experiment is looking at different kinds
of vessels and how best to control fluid
in a vessel with it particular emphasis
on bubbles and how bubbles move around I
don't know if perhaps you've you've been
in a hospital environment or a doctor's
office and you've seen maybe the doctor
nurse trying to flick the bubble at the
end before they hook it up

and give you an IV or give you a shot or

something like that and we have the same

problem in fuel tanks for example and

spacecraft and you might have these same

kinds of problems in water lines and

pumps on the ground and pumps don't like

to mix water and air they like just

pumping or fluid in there they like to

just pump their fluid so this is a

particular area study that's been

troubling for engineers for a long time

and we did that I spent the afternoon

yesterday working an experiment with
some silent scientists in Portland

386
00:15:57,169 --> 00:16:00,979
Oregon who who are focusing on this and

387
00:15:59,720 --> 00:16:02,570
because you can look at it in the

388
00:16:00,980 --> 00:16:04,100
microgravity environment you can look at

389
00:16:02,570 --> 00:16:06,199
bigger bubbles and how these move around

390
00:16:04,100 --> 00:16:07,909
and it's very very interesting extremely

391
00:16:06,198 --> 00:16:09,649
interesting we're able to control these

392
00:16:07,909 --> 00:16:11,958
things and move into where we want so

393
00:16:09,649 --> 00:16:13,759
that's a big advance when I first

394
00:16:11,958 --> 00:16:16,250
arrived I did some work with some fish

395
00:16:13,759 --> 00:16:18,860
called medaka that have bone structure

396
00:16:16,250 --> 00:16:20,539
that's just like mammals and they can

397
00:16:18,860 --> 00:16:22,039
look at the way the bone is created and

398
00:16:20,539 --> 00:16:24,919
destroyed the osteoclasts and

399
00:16:22,039 --> 00:16:27,110
osteoblasts and learn a lot about what
happens to us in space when our bones are unloaded for long periods of time and take this research back and maybe at some point eliminate something like osteoporosis some down sometime down the line it would be a huge huge advance of course for so many so many people who suffer from that as elderly so those are things we do weekly I'll let Tom talk about a few others yeah we could keep on going and take up all the time with this there are over a hundred and thirty experiments going on some of which we're involved in some of them which are going
on to control from the ground or just even automatically I've been involved in some in medical experiments as well we've been using ultrasound to look at the the ways in which the body changes here in zero gravity ultrasound obviously is not new but we're using it in ways that it's not used on the ground and as it turns out it has locked a lot of applications wind medicine terrestrial medicine particularly in areas that are generally underserved and so it's been expanding medical care in
underserved areas as well very good and

how are the fish holding up

well that's a great question all the

fish have gone into science now so they

all launched on my Soyuz actually there

were three crew members two cosmonauts

Oleg in you have Guinea and myself on

board a Soyuz that launched back in

October and 32 of these medaka fish and

at various stages in their lives and

devolution we fixed them and they're

ready for science now so they'll go home

with us as well but as frozen as frozen

fish and they'll look at how their bone
was at the time that they were fixed so

00:18:02,480 --> 00:18:06,620
that's the way this experiment

00:18:04,308 --> 00:18:08,888
works and I could say it's just got so

00:18:06,619 --> 00:18:14,178
much potential to tell us a lot about

00:18:08,888 --> 00:18:15,740
about bone loss and degradation very

00:18:14,179 --> 00:18:18,440
good they gave their lives for science

00:18:15,740 --> 00:18:20,269
commander Ford your time on the space

00:18:18,440 --> 00:18:21,860
station is up next month dr. Marshburn

00:18:20,269 --> 00:18:23,929
you're coming home in May what will you

00:18:21,859 --> 00:18:25,339
miss most when you come home and what

00:18:23,929 --> 00:18:31,220
are you most looking forward to when you

00:18:25,339 --> 00:18:33,528
get back on terra firma nomad I'd say we

00:18:31,220 --> 00:18:37,190
all miss those we love the most and our

00:18:33,528 --> 00:18:39,288
friends but besides that I'll be looking

00:18:37,190 --> 00:18:41,419
forward to a hot shower some running
water feeling the wind and maybe the

grass or the sand on my feet and after

that some food some fresh food would be

great Kevin and you know I'll just add

we do live in a beautiful Space Station

it's about the interior volume of a 747

but try spending four months in a 747

seven times so we we love it it's a very

very special thing to get to do but I'm

an outdoorsy kind of guy so I love being

outside playing golf and going out for a

run and my neighborhood and Seabrook

Texas right now and so I'm looking

forward to some time outside and like
Tom said cien cien wildlife against melon grass and just really enjoying the planet because as beautiful as it is here really you live on the best the best spaceship that that is the planet Earth so I'm looking forward to getting back and learning to live on earth again alright commander Ford dr. Marshburn thank you so much for joining us and dr. Marshburn when you get back down here we definitely want to catchup when you come back home to visit North Carolina I can't wait looking forward to it very
much thanks for this chance to talk to you a station this is Houston ACR that concludes the event thank you

Thank You WBO i radio and newscaster

thanks very much

station we are now resuming operational

audio communications