1 00:00:10,460 --> 00:00:18,530
hello I'm sts-130 mission specialist

2 00:00:14,310 --> 00:00:18,530
this Patrick and you're watching NASA TV

3 00:01:30,909 --> 00:01:41,750
good morning endeavour and a special

4 00:01:33,260 --> 00:01:45,080
good morning to you today nyx reporting

5 00:01:41,750 --> 00:01:48,109
7 and good morning to all the students

6 00:01:45,079 --> 00:01:50,870
at our school in london and all the

7 00:01:48,109 --> 00:01:52,579
students everywhere from 200 miles of

8 00:01:50,870 --> 00:01:56,650
the atlantic I'd like to encourage you

9 00:01:52,579 --> 00:02:01,450
all to follow your dreams good morning

10 00:02:01,450 --> 00:02:09,199
and thanks a lot Nick some 40 years on

11 00:02:01,450 --> 00:02:09,199
which is the school song of the Harrow

12 00:02:04,969 --> 00:02:12,020
school the wake up music today it was

13 00:02:09,199 --> 00:02:16,129
for Harrow alumnus mission specialist

14 00:02:12,020 --> 00:02:17,900
Nick Patrick this is Mission Control
Houston with W on the outside of the International Space Station looking at the new tranquility node and the cupola which is currently still attached to the end of tranquility but will be relocated during the crew's day today that work will start with the depressurization of the cupola by endeavour's astronauts terry virts and k higher and then higher and firts will begin operating canadarm2 the station's robotic arm you see poised and standing by there they will use that to latch onto cupola and then eventually relocate it view inside tranquility
watching terry virts and k higher work

through the procedure to depressurize
cupola which is on the other side of the
hatch seen here this is a view inside
the station's Destiny laboratory
restaurant K higher is positioned at the
robotics workstation which she and
astronaut Terry Virts used to operate
canadarm2 there's a time to get set up
for that operation of the arm to
relocate cupola
while the depressurization is in work
this is now a live view inside the
station's quest airlock where the
spacewalkers for this mission Bob

00:03:33,049 --> 00:03:37,669
Behnken and Nicholas Patrick are working

00:03:35,120 --> 00:03:39,259
on configuring tools for the missions

00:03:37,669 --> 00:03:42,080
third spacewalk

00:03:39,259 --> 00:03:44,259
two days in between the second

00:03:42,080 --> 00:03:46,879
and third spacewalk now so the third

00:03:44,259 --> 00:03:51,798
excursion with is scheduled on flight

00:03:46,878 --> 00:03:54,169
day 10 we see a bank and and Patrick get

00:03:51,799 --> 00:03:56,360
inside the airlock getting their tools

00:03:54,169 --> 00:03:59,539
set up for the missions third spacewalk

00:03:56,360 --> 00:04:03,530
they're doing most of this work today as

00:03:59,539 --> 00:04:06,108
the next day's work for them we'll focus

00:04:03,530 --> 00:04:07,908
on using the space station robotic arm

00:04:06,109 --> 00:04:10,189
to relocate the pressurized mating

00:04:07,908 --> 00:04:11,989
adapter number three they are the crew
members that will be operating canadarm2

for that relocation this is a camera a

video camera that was set up by station

commander jeff williams in a small

window in the hatch of the tranquility

node on the port that is facing earth

that is the port that the cupola will be

relocated to today yes we have a good

camera view the depressurization of the

cupola has taken a little longer than

expected but and there are some residual

air left inside that will be vented

overboard later in the procedure but the

environmental control and life support
system officer here in the International

Space Station flight control room was

comfortable and wanted to continue on

with the procedure to perform the leak

check to ensure that there is a tight

seal there between the cupola and

tranquility so that is the next part of

the procedure that verts will be going

through anything else is your filtration

for robotics for getting emotional Mia

Houston copies on the big loop

this is Mission Control Houston the

station's robotic arm canadarm2 is now

being maneuvered to latch onto the
cupola

space station robotic arm is paused in

this procedure to latch on to the cupola

module and is being operated by

astronauts terry virts and k higher

inside the space station commander jeff

williams is completing the final

closeout steps in the procedure that

depressurized the cupola preparing it

for its relocation in houston the cupola

depresses complete the valve of course

is closed and the camped in the vag is

left completely intact connected up to

left completely intact connected up to
the PCA for the next operation Roger

101
00:06:54,069 --> 00:06:59,419
dependent ISS this is Houston ACR please

102
00:06:57,678 --> 00:07:03,769
stand by for the NASA Explorer school

103
00:06:59,418 --> 00:07:05,808
questions hi my name is Erin Lee from

104
00:07:03,769 --> 00:07:08,448
Stewart middle magnet in Tampa Florida

105
00:07:05,809 --> 00:07:10,490
our teachers took us on a campout near

106
00:07:08,449 --> 00:07:13,009
the Kennedy Space Center so we could get

107
00:07:10,490 --> 00:07:15,800
up at 4 a.m. to see your shuttle launch

108
00:07:13,009 --> 00:07:18,278
and it was awesome but my question is

109
00:07:15,800 --> 00:07:20,360
why did you have to launch so early

110
00:07:18,278 --> 00:07:23,178
well first of all we’d like to apologize

111
00:07:20,360 --> 00:07:26,180
for making everyone get up so early we

112
00:07:23,178 --> 00:07:29,598
were up pretty early ourselves the time

113
00:07:26,180 --> 00:07:31,459
of a launch is determined by the orbit

114
00:07:29,598 --> 00:07:32,778
of the International Space Station we
need to be able to launch from Florida

and to catch up to the International Space Station to rendezvous and dock and

we want to do that with the minimal amount of fuel that we expend because remember everything that we lift off of the pad that cost us basically our our amount that we can take to orbit so we don't want to have to take any extra fuel that we don't really need to orbit so we have to stay to these very tight little short launch windows to be able to catch up to the International Space Station so again sorry for the time but
hope you enjoyed the light show hi I'm Daniel random from Stuart meadow magnet school in Tampa Florida and my question to you is how long do you guys have to train before going into outer space well it's a great question you could generally answer that question all your life because every experience that we have sure comes into play when we're here in space because you never know what's going to happen next but generally for a space shuttle mission we train for a minimum of a year specifically for the
task that we're going to do onboard that

mission prior to that though we all

train generically as astronauts for one

to two to multiple years before we get

assigned to a flight so for a space

shuttle mission the training is a

minimum of a couple of years overall for

a Space Station mission where the crew

members are staying for longer duration

they can train many years because they

train not only in the United States but

also with our international partners

so it's multiple years of training but

of course prior to that lots of years of
schooling and experience that all comes

00:09:15,350 --> 00:09:19,670 into play my name is summer Hackney and

00:09:17,899 --> 00:09:22,399 I go to burning school in Portland

00:09:19,669 --> 00:09:25,939 Oregon and my question is do you have

00:09:22,399 --> 00:09:27,949 issues with keeping things clean and on

00:09:25,940 --> 00:09:30,680 the space station in it so is it

00:09:27,950 --> 00:09:34,310 possible for mold to grow in space or on

00:09:30,679 --> 00:09:36,349 the space station that is a really

00:09:34,309 --> 00:09:38,719 really good question because it is a big

00:09:36,350 --> 00:09:40,399 issue the space station and the Space

00:09:38,720 --> 00:09:42,680 Shuttle both have very good air

00:09:40,399 --> 00:09:45,829 circulation systems with fans and

00:09:42,679 --> 00:09:48,409 filters to keep stuff clean but

00:09:45,830 --> 00:09:50,930 everything floats there's no gravity so

00:09:48,409 --> 00:09:54,019 on earth it's really nice you can see
there are things float if you have dust or lint or just anything like that it tends to stick or it tends to fall to the ground and you can sweep it up and space it doesn't it floats around and you see little specks of things floating by occasionally and when you drink in your water straw unless you get all of the water out of your straw when you when it comes out of your mouth that'll it might flick a couple little specks of water and over time those can grow mold so we spend a lot of time on the shuttle keeping things clean and the space
station crew spends a lot of time probably once a week just keeping things clean because we have seen mold grow in the past and in fact right around the corner down there you can see there's some plants growing so things can grow in space and that's why it's really important for us to keep it clean well as you know the Space Shuttle is a very complicated spacecraft so it does take a while and it takes a lot of people credit quite a great team of people that prepare the space shuttle for launch and you know Space Shuttle is
made up of several components there's a
Space Shuttle Orbiter they're the solid
rocket boosters as to the two white
Rockets and strapped to the sides and
then there's a big orange external tank
that holds our fuel so to get all of
those components together it takes quite
a bit of time the absolute minimum
a time from the time that a Space
Shuttle Orbiter lands until the time
that it can launch again is about two
months but that's very very aggressive
schedule it takes longer actually to
prepare the tank and the solid rocket
boosters those would have to be waiting

for it so after landing the team in Florida processes the orbiter in a horizontal position like working on an aircraft in a hangar and then they rotate it into the vertical position and attach it to that that solid rocket boosters and the external tank and take all of that together out to the launch pad and get it ready to launch again so it actually takes quite a bit of time but it can vary depending on what our schedule is hi I'm Hannah from stupid magnet school in Tampa Florida I have a question what
was the most difficult obstacle that you had to overcome to become an astronaut. Thanks well I don't know that I'd really call it obstacles but it is very important to have a good strong math and science background to be even considered to be an astronaut but also just overall technical experience and it really helps to have some flying experience as well. So I don't know that again that I would really call it an obstacle but there are so many very qualified folks very very smart very educated and with a lot of experience that nASA has a tough time.
selecting the astronauts from so many qualified candidates so maybe I just feel that I was very fortunate to be considered for selection as an astronaut and also that I was selected so I would suggest that you just keep studying hard and I find the things that you love to do and gain your own expertise there and apply to be an astronaut and hook days hopefully someday you'll be able to fly in space as well as you saw to a fellow astronauts floating right by hi my name is Taylor Church and I go to Everett Harris to
school in Elk Grove California have you ever personally tried growing plants in space if so how did the experiment turn out and if not have you ever been on board a mission or a plant experiment has taken place thank you yeah that is a great question actually in the next module down for me we're in node 2 so in the lab the u.s. lab there are several big bags where plants are growing right now it's one of their experiments and in fact the space station is a very big laboratory there's a Japanese lab a u.s. lab and a European lab and plus the
Russians have their own experiments

00:14:06,649 --> 00:14:10,069
going in their segment so there's a lot

00:14:08,600 --> 00:14:12,320
of different experiments happening here

00:14:10,070 --> 00:14:14,540
on our space shuttle our main job is to

00:14:12,320 --> 00:14:20,120
bring up no.3 and tranquility but we

00:14:14,539 --> 00:14:20,120
have some experiments also we have some

00:14:17,659 --> 00:14:22,279
some basically vaccination testing and

00:14:20,120 --> 00:14:24,350
there are some viruses down there that

00:14:22,279 --> 00:14:25,730
we're doing some testing and experiments

00:14:24,350 --> 00:14:28,000
on but there's lots of experiments going

00:14:25,730 --> 00:14:30,620
on here and as you can see this is a

00:14:28,000 --> 00:14:33,259
we're in like the central hub here so

00:14:30,620 --> 00:14:35,750
there's a lot of traffic going on and so

00:14:33,259 --> 00:14:39,289
pardon our crewmates as they translate

00:14:35,750 --> 00:14:42,500
by with important hardware hi my name is
praveen aroma and magnet and I live in Tampa Florida

my question is why blow gasses from a lodge if this guy is pouty or we need

again a very appropriate question for us because our first launch attempt was scrubbed because of clouds and there's a couple of problems with clouds and rain first of all is our rocket itself you don't want to damage the Space Shuttle so if you fly through certain types of clouds with lightning or rain you can get a lightning strike which actually happened on one of our Apollo missions
and or if you fly through rain the rain could damage the vehicle because we accelerate really fast we're going about a hundred miles an hour by the time we clear the launch Tower and in less than a minute we're going supersonic straight up so the rocket goes very fast through the air and so that could be dangerous the other thing is we want ground cameras to be able to see the shuttle or whatever rocket it is when we're launching unmanned rockets it's the same thing they need to they need some visibility to be able to see it to make
sure that the trajectory is going in the right direction

my name is Sabrina and I want to know what kind of tool you used to fix the space show

well hello Sabrina thank you for that question that is a really good one we have a tool kit in the Space Shuttle and we have several tool kits around the space station and one of the biggest things that we've been doing here during our mission and kay is just showing me this bag if you hear it it
sounds like wind chimes but there's a

00:16:12,019 --> 00:16:17,120
wrench and some pliers and some

00:16:15,139 --> 00:16:19,100
different types of screwdrivers and

00:16:17,120 --> 00:16:21,649
ratchets and scissors there's all kinds

00:16:19,100 --> 00:16:24,050
of stuff here sockets and so if you're a

00:16:21,649 --> 00:16:26,779
tool person this job is really fun

00:16:24,049 --> 00:16:29,149
because for the last several days and

00:16:26,779 --> 00:16:30,379
for the next few days we're we're in

00:16:29,149 --> 00:16:34,069
there turning wrenches and screwdrivers

00:16:30,379 --> 00:16:37,189
and all kinds of stuff to attach node3

00:16:34,070 --> 00:16:38,960
our new module and then later today to

00:16:37,190 --> 00:16:41,750
attach to move the cupola and to attach

00:16:38,960 --> 00:16:44,690
that so we have lots of tools and we use

00:16:41,750 --> 00:16:46,100
them a lot this is Mission Control

00:16:44,690 --> 00:16:50,110
Houston with the view inside the space
station's Destiny laboratory module

astronauts K higher and Terry Virts are

back at the robotics workstation

standing by to maneuver canadarm2 to

move the cupola elements from its

current location on the end of

Tranquility to a port on the

earth-facing side of tranquility next to

them is station commander jeff williams

who's been working at the computers to

operate the common berthing mechanism in

the latches and bolts that are holding

cupola in place during that procedure

one bolt jammed and during the initial
planned troubleshooting step another

bolt jammed so one continues to be

jammed at this point but not the same as

the original one the next option that

the Mission Control team has is the next

step is to dirigida or command the

joints and the space station robotic arm

to go to limp they will send the stop

command

for about 30 seconds as the arm is

holding the cupola in place now and

Houston this time we got bought 1-3 jams

and Houston sees that Jeff

I'm sure you guys are talking about
possible loads from the internal structure of consoles Jeff right now we're talking about up in the torques on the bolts and we'll get back to you after we've had some more time to work through it the Kuran board the International Space Station will now try the procedure again to deploy the four latches that are holding the cupola in place on tranquility commander Jeff Williams and mission specialist K Hier had worked through a malfunction procedure after getting an abort message from trying to deploy the four
latches on the common berthing mechanism

00:19:16,529 --> 00:19:22,480
basically resetting the software and

00:19:19,750 --> 00:19:24,759
attempting the deployment again the

00:19:22,480 --> 00:19:27,579
reset of the software was successful and

00:19:24,759 --> 00:19:30,670
the redeployment attempt will come

00:19:27,579 --> 00:19:35,079
shortly this all in part of the

00:19:30,670 --> 00:19:43,539
procedure to unlatch the cupola from the

00:19:35,079 --> 00:19:53,799
tranquility node and using good news

00:19:43,539 --> 00:19:55,569
were complete a stinkers station

00:19:53,799 --> 00:19:57,819
commander jeff williams that confirms

00:19:55,569 --> 00:20:02,460
that the latch is deployed as a plan

00:19:57,819 --> 00:20:02,460
we're goal for cupola viewers

00:20:03,660 --> 00:20:09,880
Houston copies and in step our procedure

00:20:07,089 --> 00:20:13,059
one point four one zero SSRMS cupola

00:20:09,880 --> 00:20:16,410
relocate Step five is complete you can
pick up in step six

mr. from station for robotics we have the arm and much longer version 118 copies under big loop

this is Mission Control Houston the team in the International Space Station

flight control room is monitoring the progress of relocating the cupola using the station's robotic arm canadarm2 astronaut terry virts and astronaut k higher at the robotics workstation to conduct that maneuver Mertz indicated that the seal on the common berthing mechanism for cupola looks clear but
that an electrical connector has popped out from behind the center and that it is recessed and cleared the mating surface so the team agreed to continue on to the next position of cupola at the pre install position just nearby the attaching port go ahead Jeff space ground one yeah that wire that we're looking at I clearly remember in the cupola it's in its nominal location the velcro appeared to be intended to be installed such that that wire is visible and that's just the way I remember
leaving it alright thanks for that info

Nicholas please copy y'all go ahead if you want things to be wise do another

survey or just zoom in on the electrical
cables let's just focus on the cable kn1

this is Mission Control Houston with a zoomed in video camera view of a connector inside around the thermal

insulation on the port of the cupola

that will be attached to tranquility

again engineers just wanted to take a close-up look with the video to make sure that that won't interfere with latches to connect cupola in place looks
we'd like you to proceed to pre install
once it pre installed take a look out
the window and make sure that this wire hasn't moved and it's going to be out of the way for the latches
for RCL's that are steady we're going to continue in the procedure houston concur
indicated that there are four ready to latch indications that means that cupola has made contact with the port that it will be attached to the next stage will be to deploy four latches to a temporarily place a cupola on
tranquility and then a series of bolts

will be engaged in a two-stage fashion

so that in the end there was will be

sixteen bolts securing cupola to its

position on tranquility I play stick

around a big loop the SSRS SSRS is

limped and we're go for second stage

capture getting a good shot now of the

cupola there on the left portion of your

capture getting a good shot now of the

cupola there on the left portion of your

screen now in its permanent location on

the inator port of the tranquility

module nadir means that it faces down

toward earth you can see it's still

covered up those covers will come off
during the third and final spacewalk of this mission that's going to be conducted by Bob Behnken and Nick Patrick both restraint systems moved as you can see the end of the station's robotic arm has successfully let go of the cupola and Nick Patrick and Bob Behnken who are currently working inside the Destiny laboratory and one of the robotics workstations there will continue to back away this arm and drive it over toward pressurized mating adapter number three it is as we mentioned currently on top of the
Harmony node

which in this view would be toward the bottom it's over toward where the shuttle is currently located the shuttle docks with pressurized mating adapter

docks with pressurized mating adapter number two but PMA 3 has been located over on Harmony temporarily to basically just get it out of the way of all the different robotics work that had to be done during this mission getting tranquility installed as well as the cupola moved over but if you look toward the left part of your screen you see an empty hatch way there on the end of
Tranquility this is where the APM a3

00:26:17,730 --> 00:26:22,649
will ultimately be installed that is

00:26:19,829 --> 00:26:30,750
where the cupola used to be prior to

00:26:22,648 --> 00:26:32,339
today's activities the station's massive

00:26:30,750 --> 00:26:34,349
robotic arm being moved from left to

00:26:32,339 --> 00:26:36,288
right as it turns his attention away

00:26:34,349 --> 00:26:43,678
from the cupola over toward pressurized

00:26:36,288 --> 00:26:45,720
mating adapter number three you can

00:26:43,679 --> 00:26:47,309
barely see the tip of PM a3 on the very

00:26:45,720 --> 00:26:50,548
bottom right-hand portion of your screen

00:26:47,308 --> 00:26:51,480
it is actually on the top of the Harmony

00:26:50,548 --> 00:26:53,129
node it's a little bit misleading

00:26:51,480 --> 00:26:55,380
because of camera angles turned upside

00:26:53,130 --> 00:26:58,320
down but that robotic arm is going to be

00:26:55,380 --> 00:27:01,019
used to grab on to PM a3 and to begin
the process of removing it and move it

toward tranquility the majority of

that activity will take place tomorrow
during the cruise day there for ISS this

is wor do you read me copy WR we have

you loud and clear how us yes indeed

you've got Bob bankin one of the mission

specialists and Terry Virts

our pilot on Endeavour right Bob good

morning to the both of you we don't have

a lot of time here so let me get right

to it

there's no tranquility that you folks

have brought up to the International
Space Station I understand as of yesterday it had some troubles you were part of the spacewalk on installation where does it stand today well we're marching right along at this point we had a little bit of trouble with what's called the center disc cover it's a piece of material that needs to be put in place prior to some relocation activities and there was some interference with that but from a spacewalk perspective that was no impact and we were able to go outside and hook up the cooling system
after having hooked up the electrical

power on the previous spacewalk so node

3 is up and running there's fans and

cooling and lights even so it's looking

good

Robert you this is not your first time

up and this is certainly not your first

spacewalk can you describe I mean is it

is it hard moving all of those big

pieces and being in that what appears to

be bulky space suit of viewers or is it

similar to doing any sort of manual

labor job well we kind of described some

of the work that we do is is kind of a
little bit of heavy lifting when we were

outside in that suit it's actually kind

of like being inside of a balloon it's a

pressurized at about for a little over

four pounds per square inch which means

every time you close your hand on

something you have to change the shape

of that balloon and doing that for about

six hours can kind of wear you out

with all the gear and all the tools

together we weigh if we were on the

ground close to 600 pounds inside of

that suit and so it does take some some

training and some careful practice in

order to make sure that you don't get
that 600 pounds moving very quickly otherwise you've got to put a lot of force in with those hands that are squeezing inside of those balloons to slow it down so it is a pretty good workout and we all spend quite a bit of time in the gym trying to get in shape before we step up here to do spacewalks on this flight we'll do three spacewalks with just two space walkers and so each of us will go out for three different occasions and for a total of about 18 hours and that can be really exhausting if you haven't
trained for it appropriately this morning with Space Shuttle Endeavor its pilot is Terry Virts.

Terry I understand this is your first trip into space so far so good what was the reaction what was it like it didn't meet expectations it's been a lot better than expectations during our launch it's about eight minutes with the engines running before we get into space we go from zero to about 17,500 miles an hour in about eight minutes and I had a chance to look outside on the way but I was able to see the moon outside
on the horizon and then as a shuttle did

a roll maneuver

I caught a quick glimpse of the entire

east coast of the United States and it

was just an amazing sight and then

you're under this g-force 3 G's it feels

like 3 times your body weight it's kind

of sitting on your chest and then boom

the engines shut down and you're

floating and then a few minutes later we

were going over the Alps and I was

really amazed the view of the earth was

different than what I expected much

better alright now I understand or I
heard that on take off some of the

00:30:43,230 --> 00:30:47,160 insulation

00:30:44,329 --> 00:30:49,710 might have separated is that true and if

00:30:47,160 --> 00:30:52,710 so are you concerned we're not concerned

00:30:49,710 --> 00:30:54,269 at all we did a lot of inspection on

00:30:52,710 --> 00:30:57,750 the second flight day that we were in

00:30:54,269 --> 00:30:59,579 space and we looked at every nook and

00:30:57,750 --> 00:31:02,400 cranny of the of the bottom of the heat

00:30:59,579 --> 00:31:04,230 shield of the Space Shuttle and we have

00:31:02,400 --> 00:31:05,820 a very large team of engineers on the

00:31:04,230 --> 00:31:08,370 ground that looked at it there were a

00:31:05,819 --> 00:31:09,779 couple of small areas where a tile came

00:31:08,369 --> 00:31:12,779 loose and on the top of the wing there

00:31:09,779 --> 00:31:14,399 was a piece of material that's sticking

00:31:12,779 --> 00:31:16,079 up a little bit but it overall it looks
really really clean and we don't have any concerns at all up here we've mainly been just really busy working from all day long getting these two modules that we've been installing that's been our main focus sorry there are only four more flights of the shuttle program here in the United States and after that we really don't have any other way to get back and forth to the space station or even into space except with the help of the Russians and their equipment you're a fairly fairly new astronaut from your perspective how disappointing is that
well it'll be sad to see the shuttle retire that's for sure a lot of people have spent a lot of years on it but it's been 30 years and every program eventually comes to an end so hopefully we'll move on to something bigger and better and you're right the Americans will not be able to send astronauts into space we will be using the Russian Soyuz.

in fact I had a chance today several times there are two soil uses docked to the space station right now so I've been down there and and taking a look at them but you're right that
America will not have a way to launch astronauts the Soyuz space capsules are almost as old as the space shuttle are they not actually the Soyuz space vehicles are quite a bit older at least the original Soyuz are they were they they've been around since the Soyuz in Soyuz has a much longer history than even the shuttle does but the Soyuz has been upgraded over the last several years there's been a couple of variants and they continue to make improvements
and what's different between the Soyuz

00:32:47,898 --> 00:32:52,459
and the space shuttle is that the space

00:32:49,579 --> 00:32:54,168
shuttle is reusable we land it and then

00:32:52,460 --> 00:32:57,048
we refurbish it and then fly it again

00:32:54,169 --> 00:32:59,509
but each Soyuz is replaced pretty much

00:32:57,048 --> 00:33:01,429
in its entirety before it goes out to

00:33:01,429 --> 00:33:06,259
the launch pad to launch again and so

00:33:02,598 --> 00:33:08,808
it's almost like getting a new vehicle

00:33:02,598 --> 00:33:08,808
every time with the Soyuz ISS this is

00:33:06,259 --> 00:33:11,239
KTVI TV how do you hear me

00:33:08,808 --> 00:33:14,528
KTVI TV we have you loud and clear

00:33:11,239 --> 00:33:16,700
onboard the International Space Station

00:33:14,528 --> 00:33:18,858
that is fantastic

00:33:16,700 --> 00:33:20,028
good morning from st. Louis to both of

00:33:18,858 --> 00:33:23,028
you how's it going so far
well the morning to you guys from us

here on the International Space Station

so far it's going really well we've got

the node 3 attached to the space station

we've got the cooling and electric

hooked up to the outside of it and today

our pilots relocated the the cupola the

nicer windows that's going to be the

window on the earth from the

International Space Station to it's a

new home on the underside of node 3 so

it's going really well

Bob you know we thought your shout out

to st. Louis last week tell us more
about your upbringing here obviously we

are so proud to have you on board there

well I actually grew up in st. Anne

which is over by the airport there

Lambert my father's a construction

worker and my mother had worked at

McDonnell Douglas when I was when I was

a child and so I grew up right there in

st. Anne went to st. Anne Elementary

which is since closed and I think

they've built a new school there at this

time and I went through the Patton Ville

School District and graduated from

Pentonville High School I am curious
Terry what does it look like from space

I mean like we've had a lot of snow so

can you see the snow from space on earth

oh yeah we can absolutely see the snow

the thing that's really stuck out to me

is just how snowy earth is right now I

think we're having a cold wood

because it seems like everywhere we go

except for Central Africa and the in the

desert you see snow especially over

Russia and Siberia Mongolia that whole

there's an entire continent that's

nothing but snow so it does look like

it's been pretty cold down there but the
view of Earth is really spectacular this

00:34:51,148 --> 00:34:54,328
is my first flight and it was different

00:34:52,949 --> 00:34:57,148
than what I thought there's a lot more

00:34:54,329 --> 00:34:58,710
color to it and it's even better than

00:34:57,148 --> 00:35:00,150
what I thought I'd been as much as I've

00:34:58,710 --> 00:35:02,059
heard as many pictures as I've seen

00:35:00,150 --> 00:35:04,410
there's nothing like seeing it in person

00:35:02,059 --> 00:35:05,640
that is amazing I want to ask Bob

00:35:04,409 --> 00:35:07,440
another question we understand you

00:35:05,639 --> 00:35:09,389
brought some special items along with

00:35:07,440 --> 00:35:11,460
you from Wash U Bob I do have a couple

00:35:09,389 --> 00:35:13,588
of items from Washington University I

00:35:11,460 --> 00:35:15,298
have a pendant that was from the

00:35:13,588 --> 00:35:17,099
mechanical engineering department that

00:35:15,298 --> 00:35:19,768
they provided for me that is on board
endeavour and I also have a certificate from the physics department as well that I'm flying for them so those are two departments right there in St. Louis that I graduated from before picking up my education out on the west coast and then going into the Air Force Thank You this is WREG Memphis how do you read we've got you loud and clear thank you very much like to start with Colonel words this trip a long time coming for you and it looks like the main part of this mission is going to be taking that tranquility module out of
the shuttle bay and attaching it to the International Space Station how did that go over the weekend that's right we've had a really great mission it's the first time that the Space Shuttle or that anybody has brought up two modules at once we have what's called node three or tranquility it's a large living facility and then we also have a module called the cupola that was launched attached to tranquility and so several days ago we took those out of the payload Bay while Bob and Nick Patrick went outside and disconnected it I moved
it from the shuttle and attached it to

the station and then just today we

detached the cupola from one end of

tranquility and moved it around and

reattached it to the bottom and we've

been busy all day

connecting bolts and hoses and that kind

of thing getting these modules ready to

go so we've been we've had a really

successful mission so far Bob's done two

spacewalks and we've got both of our

main modules attached to the station

which is really really good news now a

mission specialist bankin is from
Missouri just to bit up the road from

00:36:47,320 --> 00:36:51,010
here in Memphis it's back on endeavour

00:36:49,179 --> 00:36:53,730
with a couple of spacewalks under his

00:36:51,010 --> 00:36:55,900
belt already had has everything gone

00:36:53,730 --> 00:36:57,730
perfectly according to plan or have you

00:36:55,900 --> 00:37:00,550
had to adjust a little bit on this

00:36:57,730 --> 00:37:02,380
particular mission well I think that the

00:37:00,550 --> 00:37:04,480
the folks that are on the on the inside

00:37:02,380 --> 00:37:06,070
have had quite a bit of adjustment

00:37:04,480 --> 00:37:07,630
trying to just deal with some minor

00:37:06,070 --> 00:37:09,519
issues that have come up with

00:37:07,630 --> 00:37:11,260
interference of a lot of hardware

00:37:09,519 --> 00:37:12,880
there's a lot of a lot of parts that

00:37:11,260 --> 00:37:15,580
need to be moved around in order to

00:37:12,880 --> 00:37:17,200
accomplish moving a module out of the
shuttle payload Bay and actually getting it attached to the International Space Station and then certainly once you get that module attached and you start to try to take it apart and move pieces of it around the space station you can imagine keeping track of all those pieces and making sure they all fit just right it takes a lot of effort and a lot of folks working together to make it happen certainly during the spacewalk things have gone really really closely to our plans we've been able to get through all
of our tasks on the last couple of spacewalks which was really nice we're able to get electricity and cooling hooked up to the outside of those new modules which is also really exciting it means that the folks who are working on the inside aren't wearing headlamps and doing cave diving in order to get their work accomplished so we're really happy about that as well maybe you can tell us a little bit more about what the tranquility module is going to do for the scientists that will be aboard the International Space Station it really
adds a little bit more room to the space

station doesn't it oh it adds a lot it's

a very large module it's one of the

largest on board and it's going to be

mainly a living area it has several

different life-support racks that help

to recycle oxygen and water and that

kind of thing there's a large exercise

machine on there that helps a lot when

you live in weightlessness for six

months it can really take a toll on your

bodies on your bones and your muscles

and being able to do exercise is really

critical to being able to live in space
and it also is going to have the cupola

00:38:40,869 --> 00:38:44,710
attached to it which is going to hit

00:38:42,099 --> 00:38:48,039
which is going to have the ability to

00:38:44,710 --> 00:38:52,050
put a robotic control station so you can

00:38:48,039 --> 00:38:54,639
look outside and move the robotic arm

00:38:52,050 --> 00:38:55,660
the most important thing that it will do

00:38:54,639 --> 00:38:57,848
the

00:38:55,659 --> 00:38:59,348
I'm sorry probably the most important

00:38:57,849 --> 00:39:02,349
thing that'll do for scientists is it

00:39:02,349 --> 00:39:06,130
will get the bathroom compartment out of

00:39:04,359 --> 00:39:08,108
the u.s. laboratory and get it over into

00:39:08,108 --> 00:39:12,909
another module to kind of allow more

00:39:06,130 --> 00:39:10,318
science to happen in that laboratory and

00:39:08,108 --> 00:39:12,909
turn it into less of a hygiene facility

00:39:10,318 --> 00:39:14,909
now you were mentioning the exercise in
outer space does this mean that the
Colbert machine that we've heard so much
about that exercise machine is that
go into the tranquility module
it sure is that's one of the yeah I'm
staring at it right now it's just a
few feet from me and that's gonna move
down there every day the station crew
members have they run on the treadmill
they have a cycle type machine and then
they have this weightlifting machine
something called a red and and exercise
is an important part of their day they
spent a couple hours every day
exercising and the great thing about it

having had humans Americans and our international partners on board the space station since 2000 continuously

we're going on ten years now we've shown that we can live and work in space for long durations and and guys come back in great shape and that's due to a large part because of exercises that we do I wish we could spend more time chatting with you but we are out of time pilot so terry virts and mission specialist Robert bankin we thank you for joining us this morning on Daybreak you get an
extra day in space I understand enjoy

safe travels and we'll see you back down

on the ground within a about a week I

think that's next Sunday that you're

coming back now have a good day Memphis

thanks to for talking with us

entering no to of the international

position the commander of the

unification

number one we can now take a right turn

and enter the new notes to read this

review inside there 3 looking towards

the port or left side of the exposition

I'll get all the way to the end and turn

I
all the way around looking now towards

00:42:06,280 --> 00:42:11,560
the starboard you can see all the way

00:42:08,199 --> 00:42:18,909
across towards node 1 the equipment lock

00:42:11,559 --> 00:42:20,949
and the airlock today we were able to

00:42:18,909 --> 00:42:23,409
just look out that window and see down

00:42:20,949 --> 00:42:25,509
on a beautiful earth if we look out

00:42:23,409 --> 00:42:29,079
there now we'd actually see a cooler

00:42:25,510 --> 00:42:34,770
because we replaced the cooler to the

00:42:29,079 --> 00:42:34,769
nadir or earth facing locations

00:42:43,920 --> 00:42:48,920
more views of inside node number three

00:42:56,329 --> 00:43:06,200
three that bounty here is the fan thing

00:43:01,079 --> 00:43:06,200
of the cupola before we relocated it

00:43:11,119 --> 00:43:16,650
open up to be able to prevent the

00:43:14,789 --> 00:43:19,670
atmosphere it was inside the cooker

00:43:16,650 --> 00:43:19,670
through the vacuum of space
remove the cupola from the port side and
move it around to the bottom or nadir side of node 3
as a safety precaution and we do with earplugs and I was anything like this because you can hear the kind of high-pitched noise as the air is escaping once again this is showing the NATO or bottom safety hat before the cupola was placed there just giving you a glimpse at our view might look like this is just one single window but now that we have the cooler there we're going to have
seven windows facing down in this
direction
working in the note 3 now back to the
lab set setting up the robotic
workstation in order to relocate the
cupola she's going to use the robotic
arm to reach out and grab the cupola to
move it around to the bottom
cupola looking out the window here's Bob
and Nick in the airlock they've and
practicing resizing EMU so they're gonna
be the world's experts on resizing ABS I
think Bob said they're going to do four
resizes and they all I brought up three
00:45:21,969 --> 00:45:27,069
Emmys that's been good I know the guys

942
00:45:25,929 --> 00:45:29,230
on the ground have been working really

943
00:45:27,070 --> 00:45:32,010
hard to come up with these plans I'm I

944
00:45:29,230 --> 00:45:32,010
know that's a lot of words

945
00:45:32,530 --> 00:45:38,019
okay here's the Russian segment think

946
00:45:36,250 --> 00:45:39,159
one of our cosmonauts on this floor so

947
00:45:38,019 --> 00:45:40,750
it might have been speedy right he's

948
00:45:39,159 --> 00:45:45,879
flying through the FGB which is a

949
00:45:40,750 --> 00:45:47,829
storage area just of load one and when

950
00:45:45,880 --> 00:45:51,700
you come into this area you can go down

951
00:45:47,829 --> 00:45:54,190
to the docking compartment and you can

952
00:45:51,699 --> 00:45:55,989
go up to the what's called the mrm and

953
00:45:54,190 --> 00:45:57,579
then here is the view I think Steve

954
00:45:55,989 --> 00:46:00,059
Steve's right here so let him tell you

955
00:45:57,579 --> 00:46:03,539
what he's filming

956 00:46:00,059 --> 00:46:04,889
oh this is pretty constricted window

957 00:46:03,539 --> 00:46:06,480
environment here and the camera was

958 00:46:04,889 --> 00:46:08,909
almost too big to see through the window

959 00:46:06,480 --> 00:46:10,829
but if you look in the palm part okay

960 00:46:08,909 --> 00:46:13,079
then if endeavours the port wing of

961 00:46:10,829 --> 00:46:13,920
Endeavour Nikolas it's in the bottom

962 00:46:13,079 --> 00:46:16,079
middle of the screen

963 00:46:13,920 --> 00:46:21,210
it's the cupola on its way to its new

964 00:46:16,079 --> 00:46:23,389
home with a and Perry and Li the robot

965 00:46:21,210 --> 00:46:23,389
arm