good afternoon thank you for joining us

for this after news conference with the

sts-133 crew we'll start with opening

remarks and then take questions we'll

begin with the introduction of commander

steve lindsey steve was born in arcadia

california and considers temple city his

hometown he holds degrees from the US

Air Force Academy and Air Force

institute of technology he's also

retired colonel in the US Air Force

steve was selected as an astronaut

candidate in 1995 now a veteran of for

Space Flight steve has acquired more
15
00:00:31.379 --> 00:00:37.530
than 1200 hours in space he served as

16
00:00:33.929 --> 00:00:40.979
the pilot on STS 87 and STS 95 and as

17
00:00:37.530 --> 00:00:42.510
commander for sts 104 in sts 121 will

18
00:00:40.979 --> 00:00:46.199
now turn it over to Steve to introduce

19
00:00:42.509 --> 00:00:48.238
his crew Thank You school let's see just

20
00:00:46.200 --> 00:00:49.649
real brief introduction of my crew as

21
00:00:48.238 --> 00:00:50.939
mentioned I'm the commander this will be

22
00:00:49.649 --> 00:00:53.399
my fifth flight and actually my third

23
00:00:50.939 --> 00:00:55.530
flight aboard discovery we've had a

24
00:00:53.399 --> 00:00:57.448
great training flow we're all ready to

25
00:00:55.530 --> 00:00:59.129
go all trained just a couple of more

26
00:00:57.448 --> 00:01:01.500
things will go into quarantine on Monday

27
00:00:59.128 --> 00:01:03.089
and ready for a launch hopefully on

28
00:01:01.500 --> 00:01:06.090
November first if everything goes well

29
so real briefly my crew pilot sit next
to be Eric BOE this will be Eric second
flight he previously flown his pilot on
the space shuttle he'll be doing
robotics on the shuttle he's basically
performing all the piloting tests on the
orbiter specifically he'll be doing the
undocking and fly around and he'll fly
some of the entry as we come in to land
in addition to doing transfer and a
whole bunch of other things on the
flight next eric is al drew he's our MS
one he'll be flying on the flight deck
for a cent and he'll be on the mid-deck
for entry Al's are one of our space

44 00:01:39.780 --> 00:01:44.909 walkers so he'll be doing two spacewalks

45 00:01:42.478 --> 00:01:46.679 during the mission additionally he'll be

46 00:01:44.909 --> 00:01:49.079 flying a robotic arm with the Eric and

47 00:01:46.680 --> 00:01:50.460 myself using the shuttle robotic arm for

48 00:01:49.078 --> 00:01:53.188 inspection tests and all the other

49 00:01:50.459 --> 00:01:55.559 shuttle robotic arms operations that are

50 00:01:53.188 --> 00:01:57.589 planned for the flight and this will be

51 00:01:55.560 --> 00:02:01.859 a Hal second flight as well on a shuttle

52 00:01:57.590 --> 00:02:03.118 next to Al Tim copra is our ms to he's

53 00:02:01.859 --> 00:02:06.239 our flight engineer on the flight deck

54 00:02:03.118 --> 00:02:07.769 for asset and entry he's also our ev1 or

55 00:02:06.239 --> 00:02:10.560 lead spacewalker for the flight to

56 00:02:07.769 --> 00:02:12.840 performing to vwas in addition to be

57 00:02:10.560 --> 00:02:13.180 flying the space station robotic arm
during a number of our different operations while or talked to Space Station Tim previously flew on Space Station long-duration mission next Tim I've got mike barrett and mike is also on his second spaceflight having previously flown a six-month mission on Space Station and he actually be Mike's first shuttle mission he flew up and down on the Soyuz as flight engineer or essentially the pilot position so there's a lot of experience of that in addition to doing space walks in Russian
space suits on this flight Michael be

our mid deck captain for both acid and

entry run and post insertion deorbit

prep you'll be a flying a space station

arm during a number of the operations

while we're docked as well as during

both of the spacewalks and he'll be

doiing a lot of transfer work and

actually doing some maintenance and

repair work on board the space station

while he's there finally last but not

least nicole stott she'll be flying on

the mid-deck front for essent and on the

flight deck for entry Nicole's
previously experienced with a long-duration spaceflight aboard the space station Nicole's will be doing a lot of the space station robotic arm operations additionally prior biggest job during doc tops is she'll be directing or running a space walks from inside the orbiter as the as the IV crew member and so I've got a great crew I've got a lot of talent I've got a lot of experience on this crew something unique that we have is three veterans Space Station astronauts so there they'll be up there to keep us out of trouble while
we're on board space station so we have

00:03:42,188 --> 00:03:46,539
a great mission plan talk to the onboard

00:03:44,680 --> 00:03:48,310
crew this morning just tagging up doing

00:03:46,539 --> 00:03:51,340
some last-minute details they're ready

00:03:48,310 --> 00:03:53,229
for us and with a few more preparatory

00:03:51,340 --> 00:03:54,878
things to go and so we're looking

00:03:53,229 --> 00:03:57,250
forward to having a great mission up

00:03:54,878 --> 00:03:58,780
there and so with that I guess we're

00:03:57,250 --> 00:04:00,519
ready to get to take questions all right

00:03:58,780 --> 00:04:02,979
Thank You state we're going to start on

00:04:00,519 --> 00:04:05,349
this side if you can state your name and

00:04:02,979 --> 00:04:07,650
affiliation and we can start with Marco

00:04:05,348 --> 00:04:07,649
Robert

00:04:07,680 --> 00:04:14,549
oh thank you Mark Carrera representing

00:04:10,468 --> 00:04:16,589
Aviation Week I wonder perhaps Steve
Lindsey or you can pick someone but speaking a little philosophically about discovery and the kind of condition you'd like to bring her back in as I understand it this orbiter is the candidate for display in the Smithsonian Air and Space Museum sorry and just like to know what your thoughts are about returning it and what happens to it after your flight well we were actually down down at Kennedy Space Center last week doing the terminal countdown demonstration test the dry count and talked to the folks down at
KSC and it's interesting because I've always viewed the vehicles is belonging to a Kennedy Space Center and they kind of loaned them to us for a couple of weeks and our job is to is to take care of them as best we can and in and I always promised to bring the vehicle back at least as clean as we got it which is pretty much impossible to do say their pristine I'm always amazed walking into these vehicles you know discovery being cash 25 years old and you still walk in and it's like a new car and so we're going to deliver it
back hopefully in the best condition

can with it and it's a great vehicle

historically it's obviously a very historical vehicle having flown all the

return to flight test missions after

both the Challenger and Columbia

accidents it deployed Hubble it's it's

the fleet leader in terms of number of

flights it will flown about a year on

orbit by the time we're done with it

which is pretty remarkable for a space

shuttle personally having flown it twice

and now in my third flight it has a
special meaning to me so my thoughts on

when it comes back and when it when it's
done with its service life I you know

they have made decisions on where these
vehicles are going yet but I I think we

all have pretty good suspicion on where
this one's going but I just hope that

when it's displayed I would like to see

it displayed in such a way that that

people that go and see it for the many
years to come can get an appreciation

for what it was like to flight from our
perspective you know what was like in

the cockpit was really like to operate

appreciation for all the missions it did
and all the versatility the shuttle is offered and in the end though when it really comes down to it people are going to see the vehicles but for those of us that have participated in the space shuttle program it's really more about the people when I think a space shuttle program I think people i don't think vehicles and and i think that's probably for all of us the biggest memory that we'll have out of this is the opportunity to work with a fantastic team all across the country over many years of this program all right next
question Robert hi Robert Pearlman with

collectspace.com sort of work to work

off that question and the answer what

does it mean to each of you personally

to be on a final flight for an orbiter

does it carry an additional significance

is there at its symbolism beyond the

goals that you have set out for the

mission itself I'm pretty talked when

you guys I think go Veronica all of us

are happy to be on a another flight get

to go fly again and for us obviously

it's always nice you know it's a little

bittersweet obviously when something's
coming to an end but it's a privilege to get the fly the vehicle and
Steve said it very well it's really about the people you know we have
discovery but there's thousands of people that make up getting keeping that
vehicle flying and making it look look the way it does and fly the way it does
so for me that's really what makes this a great privilege to get the opportunity
good is anybody else want to answer that
ok
I think it's a continuation of what these guys have said is that you know
this it is a historic thing I think that

you know that we have such a special

vehicle to fly and you know the hope in

addition to having successful mission is

that in conclusion will be celebrating

the just the real significance of the

vehicle itself of and that includes the

people because it wouldn't happen

without them and I think that we have to

look at this as a celebration of just

how wonderful discovery has performed

and just how just fantastic the team

that has put it together you know work

to make it happen bill Harmon CBS all

has to call this questionnaire like her
Tim could also add you it's commander

said you guys are veterans long-duration

flights on board the station and I

wonder what does that really bring to

the table or does it bring anything I

mean when you get down to it you know

where the bathroom what does past

experience on the stage and help you

guys with on a mission like this well I

think it just to start I think and the

fact that I think everybody here is an

experienced flyer just kind of puts you

know maybe a kind of a boost to the

level efficiency will start out with the
three of us certainly are I guess you could say intimately involved they're intimately knowledgeable of the layout of the station and and how to get around and where things are and kind of the day-to-day operations that go on normally up there but you know as a crew I think we just will be in a position to just operate a little bit more efficiently right out you know right as we cross the hatch if I get jumped in a little bit on that seen it from the other side then up on station a couple of times and when you get up there and
you're with a group of folks that have been on station for a long period of time in terms of just moving or the vehicle they go through a series that you go through a series of adaptations when you get into zero g and and when you your first flight when you first get up there you're just bouncing all over the place because you don't understand how little force is really required to move around you get better and better but you never really achieve a high level proficiency on a short duration flight if you watch a space
station crew member move around on orbit

00:10:19,399 --> 00:10:24,528
their ability to get things done in a

00:10:21,980 --> 00:10:26,539
very efficient and effective manner far

00:10:24,528 --> 00:10:27,559
exceeds what we can do and you really

00:10:26,539 --> 00:10:28,969
notice it when you're when you're

00:10:27,559 --> 00:10:30,948
working next to somebody that's been up

00:10:28,970 --> 00:10:32,870
on Space Station for a few months that

00:10:30,948 --> 00:10:34,698
they can do things so much faster and so

00:10:32,870 --> 00:10:36,860
much better than you can so they I think

00:10:34,698 --> 00:10:39,679
they bring that to the table all of the

00:10:36,860 --> 00:10:41,209
all of the things that kind of the bread

00:10:39,679 --> 00:10:43,458
and butter what we do in day-to-day

00:10:41,208 --> 00:10:46,068
operations you know the when we have to

00:10:43,458 --> 00:10:47,479
do different photography things when you

00:10:46,068 --> 00:10:48,769
know hooking up electrical components
working the computers on Space Station

which are similar to shuttle but
different they work different the
systems are different having all that
knowledge built into the crew I've never
I've never actually been on a crew where
we had Space Station experienced folks I
think but with all of that they can
answer all the questions that we're not
sure about and and so I think it brings
a lot I mean we'll see how it goes but I
think it brings an awful lot that's
that's actually very important and they
do not have to work it and so yeah one
more quick one from a friend for Tim

morale I was confused in EV a previa

where you guys are when you're venting a

1 i'm a limited when you're reading

ammonia europe i guess right right by

the pump module on the front side as no

Tim wasn't just one or you guys were so

if things go for the timeline I'll be

crawling over the top of lab and heading

towards columbus i'm going to be well

clear in fact ideally if if we had to

synchronize in another way i could be in

venting but by the time i get to my
location i think the venting is you want

to be complete Thanks sure

Jill tolk where the Bay Area Houston

magazine a similar question two bills

first question for the path station crew

members things are going to be a little

bit different obviously you're not going

to have the marathon equivalent of a

space fly you have a sprint because

you're on shuttle and this time you will

have cupola so you will have a bit of

fun challenge a difference your it'll be

a different flight so what thoughts and

feelings do you have about that where


you'll be able to have a bit of a

different flight this time a different

experience I'll let take that to start

with you know we often use those

analogies marathon versus sprint I want

to remind people that a marathon you're

still running and six months are runnin

you get more efficient at it and you

actually cover more ground at the end of

the day after say three months up there

than you would at the very very start of

your race I was surprised how little

free time we had on our station mission

after six and a half months we were

still working very long days so I
wouldn't call a station mission

leisurely in any way shape or form I

think for all of us we're looking forward to a larger station and you

mentioned the cupola and certainly most people would agree that the best use of any downtime you do get which is very little is to be looking out the window and even that you're typically using a camera and trying to take pictures of geological sites of interest but I think most of us can't wait to see the cupola for a Tim in the colon I will be doing a lot of the robotic ops with the station
arm and that is currently the robotic
workstation place to jour so we're very
much looking forward to doing business
out of there and relying a little bit
less on our camera views a little bit
more on direct line of sight genius and
Sarah ABC News for Eric Eric what are
you looking forward on this mission it's
your second mission I mean like they
said no one's a rookie anymore or not a
rookie but not you're all experienced
but what's going to be the highlight of
this mission for you well I like for the
mission for Mays is actually you know
the first time you're up there things go pretty quick I'm sure it's going to go fast this time as well but I think I have a little bit more time to look around and kind of pay attention to the small details to really you know soak in all the things that are happening at the same time you know just like the last flight I'm going to enjoy just again working with the control teams you know it's a big team effort to get the job done so it's me that's always a fun part and obviously get the opportunity my kids
had mentioned and looking out at the

cupola look out the windows and see see

the view out there but i think the the

biggest overall thing that i hope to get

out of this is just to really absorb

some of the smaller details at joint

that I may have missed on the first

flight and see sees new things eric

burdon with the Houston Chronicle

question for Steve or maybe Tim micro

Nicole people been to the station before

for some time when y'all leave you're

going to be seeing the station in its

final configuration with the last module

attached to it so maybe one of you could
talk about sort of seeing the station at different points in its evolution then getting to see it in its final form as you fly away and really sort of be the first crew to do that from an external view point i can give you one other question i had is i left on sts-128 and having spent a long time like the rest of my crew mates especially the ones that were in our astronaut class waiting to fly you know you you go to program meetings you work with hardware vendors and you work at johnson space and other other nasa centers to build this space
station and be able to see it all

working together this really like a flying city in space is is almost overwhelming and for all the hard work and sometimes conflict and consternation

is really great see this beautiful piece of hardware that's flying in space and

so I'm looking forward to seeing it with a few more components and like Mike had talked about from the inside be able to

see outside the cupola hi Greg Dobbs with hdnet television Steve your first answer the first question was that you always try to bring a vehicle home in
the same condition in which you left it

is maybe a weird question but if somebody didn't think that way didn't operate that way what is it that could be done to a vehicle so it wouldn't come back as good you know what is it you're going to do to make sure it does oh well gosh a whole bunch of things I mean first and foremost we you know when every activity we do on the shuttle and every procedure we do we have procedures that we follow and and in ways of doing business and we want to make sure we always stay doing those things correctly
in terms of the vehicle itself you know

00:16:39,309 --> 00:16:42,250	housekeeping believe or not is a really

00:16:40,870 --> 00:16:43,870
big deal when you're living you know

00:16:42,250 --> 00:16:45,340
it's like living in a Winnebago for 14

00:16:43,870 --> 00:16:46,870
days and you want to keep it clean and

00:16:45,340 --> 00:16:50,410
so housekeeping is a really important

00:16:46,870 --> 00:16:53,289
part so we try try to take really good

00:16:50,409 --> 00:16:55,360
care of it try not to do anything with

00:16:53,289 --> 00:16:57,610
it we shouldn't be doing and make sure

00:16:55,360 --> 00:16:59,320
we follow the procedures and you know

00:16:57,610 --> 00:17:01,029
it's what I just said is what every crew

00:17:01,029 --> 00:17:05,829
thinks the same way as they just want to

00:17:03,279 --> 00:17:06,910
bring it back as good as possible in the

00:17:05,829 --> 00:17:08,919
past it's you know it's it's always

because we're going to turn the vehicle
we're going to use again this is a
little unique because it's last time
we're going to learn use the vehicle but
you know if we were to land and all a
sudden every the whole world were to
change they they were going to get ready
to fly it again for some reason it would
be ready to fly again and so that would
be our objective and bring it down all
right beside Phillips lost with NASA
Space Flight call not sure who this is
for exactly but your mission has changed
from when it was originally when you're
originally assigned this is going to be
an eight plus one day mission noe va's

and now you've had to e VA's added and

three flight days could you talk about

the changes that have occurred during

the training flow and kind of you know

what's what's happened with that sure

you know we started out we were the

we're going to be the final flight in

space shuttle program and the objective

of that final flight make it really

simple so somebody like me can

understand was basically leave space

station the best possible configuration

which means get the maximum amount of
mass to station the supplies they need because it'd be the last shuttle flight and leave in the best condition possible so you're going to go up drop up drop off our stuff in and undock as soon as we could so that we didn't use any of their resources since then we are no longer the last flight the flight before I said it some payload changes they move behind us and now in at least in the authorization bill they've added that additional flight so our objectives have changed by the way going into this it is
an eight-day mission I never thought

00:18:41,759 --> 00:18:45,509
we'd ever stay an eight-day mission I

501
00:18:43,890 --> 00:18:47,759
always thought we would pick up a

00:18:45,509 --> 00:18:50,730
spacewalk or two because things change

502
00:18:47,759 --> 00:18:53,819
things break we have different

503
00:18:50,730 --> 00:18:55,860
objectives so the program's added in a

504
00:18:53,819 --> 00:18:58,048
couple of spacewalks to do some

505
00:18:55,859 --> 00:19:00,000
basically some some cleanup objectives

506
00:18:58,048 --> 00:19:02,639
some things what we call homeless tasks

507
00:19:00,000 --> 00:19:05,179
Eve 8's and need to get done but didn't

508
00:19:02,640 --> 00:19:08,580
have another place so we added those in

509
00:19:05,179 --> 00:19:10,590
returning to payload then recently when

510
00:19:08,579 --> 00:19:12,149
the when the space station had the the

511
00:19:10,589 --> 00:19:14,428
pump module failure and they had to do

512
00:19:12,150 --> 00:19:16,890
the replacement we're doing some cleanup
actions going to vent that move it back

into place and and get ready so that

you can bring it home hopefully on a

subsequent mission so we're picking up

all those tasks it's been a challenge

because we added those tasks fairly late

in our interest in re VA is the content

changed very very late but we were kind

of prepared for that we had some had

some pool runs kind of held in reserve

with that we knew we're going to do

probably get new objectives Tim and Tim

and I'll did a really good job train i

think they focused on more of a
skills-based approach early on so that they could go and pick up those additional tasks we looked at. They looked, for example, they looked at tasks they thought well this may come on our flight even though it's not and so I think they're well prepared when those changes occurred so we've had a lot of Robotics change a lot of VBA changes but I think we've adapt to it pretty well and train to it so that's part of the business you need to be able to react to changes may be able react to failures just like the space station does and just like they
did recently and so it's kind of how we've changed our approach over the years to be able to handle this anyway.

so hi I'm mark Kirkman interspace news first question for Steve I understand you had I think your final entry sim this morning I was just wondering if you might be able to give kind of an insider's look at the horrors you face this morning and what some of the remaining training requirements you have between now and heading to the cape and then a follow-up for being inside on the training that's left
oh also what you face this morning what

557
00:20:42,778 --> 00:20:47,009
it was like to be a no well we uh we did

558
00:20:44,640 --> 00:20:50,100
our start off we we did our for the last

559
00:20:47,009 --> 00:20:53,940
entry simulator this morning we did

560
00:20:50,099 --> 00:20:55,408
about four runs now we do various runs

561
00:20:53,940 --> 00:20:59,788
but these four we all started from

562
00:20:55,409 --> 00:21:02,700
200,000 feet so kind of about mach 17 18

563
00:20:59,788 --> 00:21:04,589
19 somewhere around there and you know

564
00:21:02,700 --> 00:21:06,870
they throw various failures out as

565
00:21:04,589 --> 00:21:09,990
computer failures reaction control

566
00:21:06,869 --> 00:21:12,418
system failures electrical failures you

567
00:21:09,990 --> 00:21:14,339
know they and it just forces us to work

568
00:21:12,419 --> 00:21:15,809
as a team with us in the ground to go

569
00:21:14,339 --> 00:21:19,470
through those and all those runs went

570
00:21:15,808 --> 00:21:20,609
great and then the very last run is
probably it was probably the most important run we took it down all the way to the ground then we did what's called post landing after we land a shuttle we go through about an hour of reconfiguration of the vehicle working with Mission Control to get the vehicle safety and configured so that we can actually exit the vehicle we actually went through all of those procedures to practice those once more time one more time as far as remaining training left we have some photo TV type training to go some review of some systems and
computer systems and a few other things

we have a some medical tomorrow or

launch minus 10 day physicals and a few

other things like that will go into

quarantine on Monday and we'll do a few

more review classes we have one asset

sim left with our asset team and then

after that we'll fly down to the cape

and we'll be ready to go so there's very

little training left mostly it's a lot

of administrative things we're trying to

you know personally prepare for going

into quarantine and and leaving our

families for you know three plus weeks
at least so so that's kind of where we are now so we're well ready to go

and then if I'm a question for bim i actually think i remember you as a cadet NCAP and i was this wondering if you can maybe comment on what an organization like that might how it might influence someone to be able to do great things not that looking at you back then I thought you were a future shuttle pilot but so so water there might be what in his JP today but you're asking about CP which is similar prefer one else that's out there and it's a sort of the Air
and you there they have a cadet program

and I was a senior proton I was involved

in the cadet program very hilly I'm

still still number but what I enjoyed

about as a cadet it for me I was very

interested in aviation so as an

opportunity to one they gave me the

opportunity to obtain my solo license

gave me all the flights and the training

necessary to go do that we did I was

from Georgia we did a lot of search and

rescue and so it was a lot of these

things a lot of the team work a lot of

the flying aviation skills and also just
my passion for aviation kind of got fostered and select all so to me it was a great program as a kid so to get involved with and learn a lot of different things about that that answer your question okay Jim Oberg with NBC a quick question to make sure that have you all found time to vote yes we're all early voting so excited yesterday morning it was a short line so what happened i can get longer and more serious question about last things is that you know the flight crew is always encouraged the ground support group
The team's their trainers operators you're always deeply involved in encouraging these people you're facing a double challenge now that many of the people you're working with now probably won't be here six or twelve months from now what kind of special things are you doing to encourage people who are without any fault of their own approaching the end of their spit out of their NASA careers how are you helping them he would keep up their spirits sounds like a difficult question i guess i'll try to try to answer that yeah it
is a difficult you know we were down

at Kennedy Space Center last week and

there's about a week or so maybe a week

and a half after they took thousand plus

layoffs we took 300 and something here I

think and more to come and it's a very
difficult time the thing we noticed with

with all the people working with all the

teams working with is even with those

layoffs everybody's very motivated to

see this program through and see it

through successfully so Eric and I were

actually talking about this yesterday a

little bit that a you know it's really
interesting that that you're you know

671 00:24:58,380 --> 00:25:01,800 you come here and you realize after

672 00:25:00,480 --> 00:25:04,470 you've been here for just a short time

673 00:25:01,799 --> 00:25:06,569 that the workforce here and

674 00:25:04,470 --> 00:25:08,339 other centers is very special because

675 00:25:06,569 --> 00:25:10,168 these people aren't here because they're

676 00:25:08,339 --> 00:25:11,668 getting paid more than you would in any

677 00:25:10,169 --> 00:25:14,100 other organization matter of fact

678 00:25:11,669 --> 00:25:15,390 probably particularly in Houston you

679 00:25:14,099 --> 00:25:17,459 know for an engineer you're getting paid

680 00:25:15,390 --> 00:25:19,009 less to work here but people are doing

681 00:25:17,460 --> 00:25:21,210 this because they love it so to watch

682 00:25:19,009 --> 00:25:22,769 program winding down and watch people

683 00:25:21,210 --> 00:25:24,600 losing their jobs as tough but they're

684 00:25:22,769 --> 00:25:27,629 all very motivated to do do the right
thing so from our part what we do is we

do our best to continue encouraging

those folks think in those folks are

what they do participating in their

events wherever we can whenever we can

in trying to encourage them and you know

one thing that I've told several groups

so that you know reaching the end I said

you know it's it's true for us too

because when the shuttle programs goes

away we won't be a part of it either and

our own office is shrinking as well to

go with it so it's kind of sort of

happening to all organizations but you
know one thing that I like
to tell folks is that you know you're part of a very special team one that you probably won't ever see again I mean there may be a team for the new vehicle whatever that is and it'll be a good team but it won't be this team and if nothing else you know you can look back I think with a lot of pride on what we've done over the years with the space shuttle program and building the space station in the mirror and all the satellites we did before that in and all the things we did with the space shuttle
and so we like so we do our best to
courage people now that doesn't give
them a paycheck and there's not much we
can do about that but try to encourage
folks and in help folks where we can is
about about all we can do so I believe
we have someone Haley campus with a
galveston kind Daily News how can you
tell me what it's like going or what
your thoughts are going into your first
spacewalk and kind of give a picture of
what training has been linked for that
up just look very lucky right now like
Steve mentioned initially that our
flight didn't have any spacewalk

00:26:56,460 --> 00:27:00,058
scheduled when we first started Tim and

00:26:58,589 --> 00:27:03,119
I were scheduled for contingency

00:27:00,058 --> 00:27:04,349
spacewalks but we're never sure that

00:27:03,119 --> 00:27:06,029
we're going to have one so when the

00:27:04,349 --> 00:27:08,099
opportunity arose to pick up some of

00:27:06,029 --> 00:27:09,980
these homeless tasks along with the

00:27:08,099 --> 00:27:13,019
cleanup from the the pump module failure

00:27:09,980 --> 00:27:15,659
it was a it was a great opportunity go

00:27:13,019 --> 00:27:17,609
out and help out the program and horse

00:27:15,659 --> 00:27:19,290
kiddo go outside and look at

00:27:17,609 --> 00:27:22,048
universum outside of a vehicle for a bit

00:27:19,289 --> 00:27:24,569
I said that's I think the bigger part is

00:27:22,048 --> 00:27:26,339
this is feeling like you can make a big

00:27:24,569 --> 00:27:28,439
contribution to to the program itself
the things out there that we can do

we've got special training to go do and

it's going to keep the space station alive longer will trying to extend it beyond its original intended lifespan

and to hopefully some back look back in 2020 and see it out there working and I think I had a small part in keeping it going that long I think will be the big part I'll take back from this Kerry flyable Houston Public Radio and also on behalf of Austin public radio mr. copra

I wanted to you know as someone who's from Austin I think a lot of Texans are
going to be keeping a special eye on you

and I wanted to find out from you the

more what your feelings are about being

one of the last few people to be on a

shuttle mission and also what would you

say to students who you know during this

time of transition and all the programs

who still want to be an astronaut who

still might want to be an aerospace

engineer what would you tell them sure

well I think like all my my crewmates

here we all feel very privileged to be

part of this mission and we also feel

like we have a lot of responsibility to
do the best that we can to put Space Station the best possible condition before we leave so we're both very privileged but also you know we feel them the responsibility to do the right thing and work hard and do a good job for everything that's playing on the mission in terms of you know what young people think in terms of their aspirations to do big things like be an astronaut or some other large goal I would say that the primary thing that any young person needs to think about is their big goal and working towards
that and in large measure it's not so much the goal because I feel very fortunate like like all the folks aren't office to have this job but but I think one thing I've learned along the way is the path is as important if not more important than the goal itself so anytime young people work hard in academics or direct stricker activities and they excel I think it just increases their possibilities in the future and they should continue to work hard and and dream big okay with that i think we will switch over to Kennedy Space Center where we
Marcia Dunn Associated Press we just heard from the Robonaut briefer that he spent 20 years going around asking people what they would do with a robot if they had one so my question for the free three former Space Station residences if you had had a robot aboard the space station with you what would you have had him or her or it do and how do you see robonoid as easing the burden for future cruise all right Marcia that's a really good question and I think we see Robonaut is the program
does is very much a technology
demonstrator it's the first time we've
had a humanoid shape robot for
spaceflight and that conjures up all
sorts of uses and things well beyond
what we've got envisioned for it quite
yet so I think that's the important
thing is that this is a very much first
step and we will be identifying some
bread poured tasks over the next few
years to figure out how best to use a
humanoid robot in space when you look at
some of the tests that were asked to do
and what a robot could do you're
thinking of things that would be perhaps
dangerous for a human to do or
repetitive tasks that would wear a human
out so if you were to go around the
station for instance and identify
scenarios where it was risky to send a
human in whether you had a suspected
fire or a toxic release and what you
needed was a switch throw or to
discharge a fire extinguisher into the
right fire port that's the kind of thing
we could eventually envision sending
Robonaut in to do a couple of those
scenarios I much rather send a robot in
then go in myself on a gas mask but

842
00:31:10,400 --> 00:31:14,809
again we're very early and I will be

843
00:31:12,319 --> 00:31:16,490
mapping those tasks to the capabilities

844
00:31:14,808 --> 00:31:17,899
that Roberto demonstrates over the years

845
00:31:16,490 --> 00:31:20,058
and it will be years before we figure

846
00:31:17,900 --> 00:31:24,890
all this out so we're excited to see

847
00:31:20,058 --> 00:31:26,329
this all start thank you and if you had

848
00:31:24,890 --> 00:31:28,759
to have unloaded one of the more

849
00:31:26,329 --> 00:31:30,619
unpleasant mundane tasks while you were

850
00:31:28,759 --> 00:31:37,129
up there for months what would that have

851
00:31:30,619 --> 00:31:39,019
been nothing that Robin nut yeah nothing

852
00:31:37,130 --> 00:31:40,320
to Robonaut has the dexterity for at

853
00:31:39,019 --> 00:31:43,888
this point they put it that

854
00:31:40,319 --> 00:31:46,558
way it's funny though up there nothing I

855
00:31:43,888 --> 00:31:49,258
think I get your picture and I have a
00:31:46,558 --> 00:31:51,269
question for a colonel drew I'm just

00:31:49,259 --> 00:31:52,919
wondering if being an astronaut was

00:31:51,269 --> 00:31:54,388
something you've aspired to throughout

00:31:52,919 --> 00:31:58,710
your Air Force career whether it was

00:31:54,388 --> 00:32:00,599
there with you from boyhood and how how

00:31:58,710 --> 00:32:03,298
you've gotten to this place in time now

00:32:00,599 --> 00:32:04,798
today I didn't what inspired to become

00:32:03,298 --> 00:32:08,490
an astronaut until I was at least five

00:32:04,798 --> 00:32:10,048
and a half years old well that time I

00:32:08,490 --> 00:32:12,720
gave up my dream of being a pilot inside

00:32:10,048 --> 00:32:14,429
to go pursue that it was i was watching

00:32:12,720 --> 00:32:15,629
the Apollo program back then and thought

00:32:14,429 --> 00:32:18,149
that was something that looked like it

00:32:15,628 --> 00:32:20,730
was more like fun than work I've since
learned otherwise it's still fun but

it's still a lot of work it was one of these that was in the back of my mind during my Air Force career but nothing I really took that seriously I think depending a bed of your career in becoming a national I planning your pension around winning a lottery and it's a sudden you you can go pursue but sure to have a plan B in place so I did everything to make those make it to stack the deck in my favor but never really expected it was going to happen it's james dean from florida today and
similar to marcia this question about

Robonaut 2 i want to ask the same for

those of you who've had experience on

station about how the addition of the

pmm might have been welcome just adding

that closet as it's being called or

extra storage space i think it's going

to be i think it's going to be a really

outstanding addition to the station i

think anybody that's that's lived and

worked up there has at one time or

another or many times felt like wow if

we just had a closet where we could

stick this or we just had you know
designated storage for these particular

00:33:26,009 --> 00:33:29,940
items would be such a great thing and I

00:33:28,888 --> 00:33:31,709
think what it's going to do is it's

00:33:29,940 --> 00:33:32,548
going to it's going to provide that but

00:33:31,710 --> 00:33:35,100
it's also going to give us the

00:33:32,548 --> 00:33:36,480
opportunity to go through station and

00:33:35,099 --> 00:33:39,000
look at where we have stuff and maybe

00:33:36,480 --> 00:33:41,069
better distribute so that we make even

00:33:39,000 --> 00:33:42,240
more space available so i think it's i

00:33:41,069 --> 00:33:48,058
think it's going to be a really really

00:33:42,240 --> 00:33:49,980
nice addition thanks nikka know if I

00:33:48,058 --> 00:33:51,648
could stick with you for a moment we've

00:33:49,980 --> 00:33:53,940
been trying to occasionally follow

00:33:51,648 --> 00:33:56,278
discoveries processing flow as it

00:33:53,940 --> 00:33:57,808
getting ready for a final flight as
someone who is intimately familiar with that process just wondered if you could speak a little bit to what it takes to and you guys have talked about the thousands of people involved what it takes to turn around a vehicle for flight and to the extent you've been able to follow it closely if there's anything unique that you've seen during discoveries flow well I think as it goes for any vehicle down there it's it's a complex thing and you move from the run way back to the orbiter processing facility with the orbiter itself and
then in parallel with that you've got all this work that's going on and preparing the Boosters and the external tank and then ultimately bringing it all together but I think we always have to go back to the people on this because when I work there and now when I get the chance to go back it is so impressive to me to see how just cleanly it all does come together for as complex as it is and you can take just one little part that's in the aft part of the orbiter and look at the complexity of that and see how nicely it comes together and
then look at these you know these four big pieces the the shuttle and the two boosters and the tank sitting so beautifully together at the end and ready to launch and it's it's really an interesting process and it all comes down to to the people that are there that know how to do it and have have like these guys have said a real passion for making it happen and as far as anything unique and what's going on I don't know that there really is anything this time to point out I think for us it's it's just always a real pleasure to
go down there and see the milestones the

kind of the steps that are being taken

to make the vehicle ready for launch and

when we were down there last week for

tcd to year for our kind of our practice

count it was it's another one of those

impressive times where you stand at the

base of that pad and you look up at this

this beautiful vehicle and you just give

a big thanks to the people and are just

really happy to know that you're going

to be strapping in there in a couple

weeks and getting to launch so I hope

that answers your question that's great

thanks so much and there's just a couple
of final questions for commander Lindsey

I recognizing there there may be an additional shuttle flight added but

knowing that there's only two remaining

now I just wondered if was it in fact a kind of a relief to you as leader of the mission when this mission know what became no longer the last shuttle flight

in terms of just knowing all the you know added attention and stress that might add to getting ready for a flight

and now another cruise going to have to deal with that gosh I I never really thought of it as a burden honestly you
know the my feelings on you know where

we flew in the where we are in the

manifest is you know was it was

originally selected to be the last less

crew for the last flight when it moved

it's never been about us it's always

been about the program what's right for

the space station what's right for the

space shuttle program so I only moved

out of that position you know we're

happy to serve wherever we can best

serve the the programs and get the

objectives done so it wasn't you know

whether I was the last flight or not the
last flight i didn't really feel honestly when we were last friday and feeling the additional pressure associated with that maybe i should have but i really didn't so so it's kind of a wash for us i think but we're happy to be flying together we're happy with our objectives looking forward to the mission and so personally i'm really excited to be flying with this crew i love all these guys and girls and and they they're fantastic group of people to fly with somebody once told me when i first came into the office it's you'll
find as you get more experiences it's
less about what you do on a mission and
it's more about who you get a fly it
with and I think that's really true in
this case
great and you mentioned earlier that the
astronaut corps like like other parts of
the the program Nagant ER is shrinking a
bit as the program nears an end being a
former head of the office can you tell
us what the core is going to look like
after shuttle fly out is complete in
terms of numbers and and how you move
forward well I can I can tell you what
we do to size the office the office has
always been sized based on the manifest

requirements in other words who we need
to fly when how often we need to fly so

we were always sized for you know

shuttle and station and then when

station went to six crew we needed a

bigger bigger crude to support that in

so we plan to sizing to support the

manifest plus a pad to deal with you

know somebody who maybe doesn't get

trained all the way in a certain system

like you know space walking or robotics

or and we also plan to deal with

unexpected medical conditions and so
That's how we sighs the office we did

sighs the office for shuttle landing and

in space station at six-person crew and

then the addition of the constellation

program when I has come and so we

planned our sizing for that so I think

the sizing of the future really depends

on what the program looks like not not

the ISS program but the with the

follow-on you know next vehicle program

and so will I know the right now that

they're looking at the sizing and Inl

they'll calculate what size office we

need based on those manifest
requirements so it's a constant changing target we will hire early to try to prepare for that we don't always get it right in because if the program doesn't fly exactly on time then we may have too many if we come up to speed earlier and we we don't hire soon enough then we may not have enough and so it's so we try our best to plan for that and in higher according to that so we have the right numbers of folks to accomplish the mission so I can't give you a specific number because I haven't been i've been doing that for the last
year and I'm sure probably the current

division office and flight crew ops can

probably elaborate a little bit better

on where they are but that's essentially

the process that we use to decide the

size of the office

todd halvorson of florida today for

either Steve or anybody who wants to

take it I was curious about what you

folks thought about the commercial crew

transportation program shifting the

responsibility for launching astronauts

from NASA to the private sector anybody

want to take that I guess no okay

another hard question i get it take that
one well i think i think it's a it's a
it's a challenging time in terms of what
we're doing with that and haven't been
working on at the last year cuz i've
been training for this mission the to go
from essentially government oversight to
government in sight it'll be an
interesting transition we have to go
through in a real challenge for us
because we have to figure out what you
want the you want the commercial
companies to succeed and you want them
to be able to do it hopefully uh you
know cheaper than what we do it how we
do it as one of the motivators for doing it but the challenge is making sure we maintain the safety so i guess when i put on my old Estrin office chief hat what I look at is I think the Devils in the details here it's all on how we implement it how much insight is the right amount versus oversight and so I think from an office respective what we'd be looking at with that transition to commercial is first and foremost the safety of the process the safety of the vehicle that we fly making sure that it meets our human rating requirements and
so I think the way we're approaching

this is in terms of how we handle the

human rating requirements to this new

set of contractors if you will that

would be providing this new vehicle to

us so I don't know if I answered your

question very well but it's very

much a work in progress and and I think

the key is how we do it so I don't think

anybody's against doing it it's just a

matter of how you implement it and

implement it smartly safely and

effectively I could give a big picture

spin on that as well we're kind of
fixated right now on the next steps that

we're about to take

as an office I think you'll find down to

the last person in our office we're all

very pro NASA but more broadly we're

very pro human spaceflight and I think

if you look at the long run most of us

would agree that the more human

spaceflight the better and whatever

means out there help us to accomplish

that because there's so many reasons for

us to get off and explore and expand

then we're in support of that no

question about it so if this becomes one

of the logical next step again from a
big picture standpoint then we're going to be very supportive of it and we're going to offer as much help as we can individually thanks very much let me give steven easier one I was wondering if you guys have nicknames for each other and if you do what they are and why not as far as you know now I don't think I can say anything here 21 get me in trouble so so I think I want that was that was easy one to let me try one more and this is for Steve you mentioned that and this is for Steve you mentioned that you've flown discovered twice and this will be your third flight I'm
wondering if the vehicle has a personality of its own and if it does how you would describe it well that's a good question I I think they do i've flown lifelong columbia atlantis and discovery and it's probably just imaginary but but i think they fly differently and you know to be specific i think i think discovery well columbia flies flew different than all then either the other two and and i think you can explain that because it was a lot heavier it had tiles all over it as opposed to thermal blankets and i think
all of the handling qualities of Columbia were just a little bit different than the other ones that flew it flute like it was heavier quite frankly from what I remember I think Discovery has a little bit wilder ride on a scent it just reminds me that it just the motions that you feel as you're going up I mean the trajectory is the same it looks the same it flies it just seems to be a little bit wilder more a little bit wilder ride on a scent
I think Atlantis is a little bit rougher on entry specifically in Atlantis when you hit typically in all the vehicles when you hit the Mach 1 point you get this buzzing that goes through the airframe as you slow from supersonic to subsonic and you notice that on discovery but it doesn't it's not very much and it doesn't seem to very long at least the last time I couple times I fluid it was like that Atlantis it has this buzzing that at least on that flight went on forever and it may have been associated with the weight of the vehicle understand or gravity of the
vehicle but to me they fly a little bit different so i think the personalities are a little bit different how they feel how they fly they all fly grey they all handle great but they're just just slightly different so you can you can tell there's some switches that are different but but very very small Delta's there but they just they just handle a little bit different to me so i guess that's how i describe the differences alright with that we will now switch over to headquarters where we have a reporter with questions hiya sis
Denise Chow from space com one of the other milestones that will happen if your mission goes on with the proper time line is that the 10th anniversary of expedition one arriving at the space station and especially for the members of the crew that has spent significant about the time on the station I was just wondering what that milestone means to you and and for the future of the ISS I guess all start out you know it's a it's really interesting be able to a fly on a shuttle after in a shuttle mission after being on station and you know all of us
have watched from the very beginning

when space station crews first started

and actually the rigor that they went through for their training and what they had to experience when they're on board

and I guess one thing that that I noticed over that time is that both the the quality of live in training and quality of life on board space station is continued to improve and that's a great thing I think we're learning how

live in space and every step and every cruise is doing it better and getting smarter and the program is getting
smarter because everything I think one
thing is to say thank you to the

to venom because I think from the very
beginning starting with this you know

significantly smaller volume where you
have these three guys living up there

and working as an international crew

working on you know a vehicle that Ben

had even at that size Ben had been built

from that point on successful

international program it just was such a

great starting point for for all of us

who now get to experience this ginormous

volume and still sharing in this really

spectacular international program that
has made it such a success

and just a follow-up question for

Steve I thought it was really

interesting are you were talking about

the differences of the various shuttles

that you phone on and I was just

wondering about discovery in particular

if you've noticed differences between

the first and the second flight that

you've taken and to your knowledge the

upgrades that have been made for this

upcoming mission if some it'll feel

different for you I don't think it'll

feel different the the first flight on
discovery was not to space station and
we had a we actually had a Spacehab
additional science module in the back of
the payload Bay so I was a lot heavier
and the mission was a lot different as a
lot shorter second mission we went to
Space Station and and we were a little
bit lighter and we had the power
transfer or we didn't have the power
transfer system yet we will in this
flight but in terms of how they flew and
how they operated enacted basically the
same what was unique by the first flight
peluda scurvy went really high went up
to Hubble altitudes we were up at about 360 miles high and in a different orbit than space station and in the view of the Earth from that different orbit is is just altogether different than what it looks like office space station and so that's probably if you want to compare those two flights for me the the different altitude really made made a huge huge significant difference in how the earth looks at the altitudes we were flying the earth looked a lot smaller and a lot rounder which you wouldn't think the difference of gosh what was it
may be you know 120 130 miles makes but

00:49:19,130 --> 00:49:23,780
it really makes a big difference when

00:49:20,329 --> 00:49:25,039
you're up there all right thank you very

00:49:23,780 --> 00:49:26,599
much Steve and thank you for everyone

00:49:25,039 --> 00:49:28,759
joining us that concludes our breaking

00:49:28,760 --> 00:49:36,010
for more information on the sts-133

00:49:28,760 --> 00:49:36,010
mission we encourage you to look at our

00:49:30,019 --> 00:49:36,009
website wws a good / shuttle thank you

00:49:37,380 --> 00:49:39,440
you