good afternoon everyone this is the pre-launch news conference 40 dress k

NASA's tracking and data relay satellite to be launched on Wednesday aboard an atlas 5 rocket built by United Launch Alliance and in our briefing today our participants leading off will be Vadra Eunice the deputy associate administrator for Space communications and navigation at NASA headquarters Tim Dunn the NASA launch director from the Kennedy Space Center Vernon Thorpe the program manager for NASA missions from united launch
alliance in denver jeffrey Grambling the

NASA teachers k project manager from

goddard space flight center and joel tom

viol the launch weather officer from

the 45th weather squadron at cape

canaveral air force station and we'll

begin our briefing with opening remarks

from badri honest but me thank you

george i would like to mention that

there are two critical functions and

essential functions without which space

exploration and all kind of science that

we do in space wouldn't have been

possible these are the launch services

wouldn't have been
and the space communication and

navigation these two functions if you

don't if you don't have and you don't

perform them successfully you cannot do

any science or human exploration in

space communication navigation

scan is the program office at

headquarter responsible for all NASA

space communication navigations and the

deputy associate administrator and I'm

also the program manager for scam I have

few slides to show you to explain a

little bit about our program and the

value we had to we add to the nation
first line seconds like

44
00:02:10,069 --> 00:02:19,709
scan is a very intricate and complex

45
00:02:15,110 --> 00:02:22,980
program we have assets all over the

46
00:02:19,710 --> 00:02:25,760
world providing communication and

47
00:02:22,979 --> 00:02:29,969
navigation services to a whole wide

48
00:02:25,759 --> 00:02:32,699
variety of space users and they can vary

49
00:02:29,969 --> 00:02:34,500
from sub-orbital users all the way to

50
00:02:32,699 --> 00:02:37,560
users who are now presently

51
00:02:34,500 --> 00:02:40,650
crisscrossing the boundaries of our

52
00:02:37,560 --> 00:02:42,240
solar systems we have three separate

53
00:02:40,650 --> 00:02:45,870
networks that have evolved independently

54
00:02:42,240 --> 00:02:49,230
over time catering to the specific needs

55
00:02:45,870 --> 00:02:52,140
of the various missions these are the

56
00:02:49,229 --> 00:02:58,949
nearest network the Deep Space Network

57
00:02:52,139 --> 00:03:02,029
and the Space Network next line at any
day we support over a hundred mission

anything anything you see coming from

space has to go through us has to be

enabled by a by us and these are the

kind of missions you know coded the

network that provide that support some

time to network may be provided support

to the same mission and I will talk

about the specific networks next slide

the the support is provided to the human

spaceflight as well at to robotic

missions whether you are doing

astrophysics heliophysics what they are

doing space reach research in the
general earth exploration science it has
to go and it would go and it's all
enabled by scam next slide the Deep
Space Network essentially supports users
that are far away from Earth and their
main characteristic is that they look
you have been designed to look for
faint signal imagine a user having 100 watt transmitter what's 101 like a light
bulb you have in your home the further
you go away unless you can see it
imagine yourself billions of miles away
we have
capabilities and tennis that can detect
these signals and bring it back to the user to make sense out of it the nearest network essentially caters to mission that are flying around earth they are primarily earth exploration system studying the weather study in all kind of sciences that are of interest to us on earth about you know drought about flooding about all kinds of things that we do on earth and it has also evolved over time and it's an example of efficiency because we do rely on a hybrid model where in addition to the NASA assets we get also support from
commercially provided services the Space Network is the newest of the all of the networks and it has evolved over time based on need and need to provide near real-time communication to our users you know as you go in space the further you go the more visibility you have to the earth but for those mission who are flying very near Earth you know because they go over ocean and land it’s tough to provide continuous coverage I can give you an example next time the space dock before get into to the example out of nine spacecraft we had an orbit we only have seven who have survived the
two spacecraft that have been retired recently also they have outlived their expected life expectancy they fail and so we had to put them in a retirement home in an orbit far away from our up you know our operating orbit and we continue to rely on the remaining spacecraft but many of them are getting old and they need to refurnish you know so that's why we would be flying the tea dress k and the following Peters's next day the next chart operationally we need 7 spacecraft 6 operational and one hot
spare just in case one fails we remove

it there and we'll continue to support

to our users but the concept started in

the in the 70s for the space that work

we're in order to provide sorry about

that in order to continue to provide

continuous coverage we had to move away

from the old model where we had so many

station distributed worldwide a lawn

with ships and airplanes the cost was

was very high to the agency additionally

it only provided fifteen percent

coverage we could do more so we came up

with the concept that it took us a while
to implement it in the 80s where the kind of coverage has increased to eighty-five percent by putting a relay satellite in a geosynchronous orbit looking down on earth we were able to see much of the activities done under the synchronous orbit and in the process reducing the cost and moving away from the dangerous situation where we had to operate previously in dangerous part of the world the political situation you know was such that you know that the cost was high and there were danger.
associated with a caption that mission

00:08:18,240 --> 00:08:26,009
and provided that support next so we

00:08:23,939 --> 00:08:30,540
kept on evolving the network and we

00:08:26,009 --> 00:08:32,549
added another capability to close a sort

00:08:30,540 --> 00:08:34,050
of exclusion although it’s two

00:08:32,549 --> 00:08:36,329
spacecraft you can see most of Earth's

00:08:34,049 --> 00:08:38,879
there was a small sliver that you could

00:08:36,330 --> 00:08:41,879
not see and that was about fifteen

00:08:38,879 --> 00:08:46,019
percent of coverage for altitude below

00:08:41,879 --> 00:08:49,019
50 twelve hundred kilometer by putting

00:08:46,019 --> 00:08:50,639
another station at at guam we are able

00:08:49,019 --> 00:08:53,340
to close that

00:08:50,639 --> 00:08:56,580
thought of exclusion the success we had

00:08:53,340 --> 00:08:58,530
was with cedrus you know made everyone

00:08:56,580 --> 00:09:00,420
come to us for support you know all of
the NASA mission wanted to be supported by theatres at the beginning we wanted it to be to cater to those who required near real-time support such as the human spaceflight but when they when all of the other users saw the value our requirement started to increase and we had to add more spacecraft next like that's what the example I was referring to as you can tell without the teachers the green area the green spot that you see are the only coverage areas the rest of the time you know the spacecraft was in the dark you know was we couldn't
communicate the wizard now with the

addition of theatres text slide we

provided that hundred percent cover

coverage next slide again our need is

based on the requirement that we have

that are requiring the 78th spacecraft

and we keep on keep on furnishing new

spacecraft to replace failing one and we

expect that need the requirement to to

go to go down between you know starting

in 2016 but you know and we see more

spacecraft failing but will we most

probably will be moving from a space 7

spacecraft operation to a 5 spacecraft
operation based on the requirement that

would be having in the future and we

don't see any need to any spacecraft

beyond k and l NM that we are launching

over the next few years under 2022 we

are doing reliability modeling now to

see how soon do we need to build the

next generation of data relay satellite

next slide again all of the beautiful

images whether you are looking deep into

space trying to discover the origin of

the universe looking at the the galaxies

or looking at Earth you know trying to

see the trend in the weather and the
changes that are taking place looking at

00:11:03,990 --> 00:11:08,639
also provided support to the the

00:11:06,120 --> 00:11:10,259
space station all of the voice and the

00:11:08,639 --> 00:11:13,250
data and the video that you are getting

00:11:10,259 --> 00:11:16,169
that go through scan without which you

00:11:13,250 --> 00:11:17,669
you know if scan didn't exist you didn't

00:11:16,169 --> 00:11:20,179
see any of the things that you are

00:11:17,669 --> 00:11:23,309
seeing science couldn't be performed as

00:11:20,179 --> 00:11:25,199
we know it today probably nasty you

00:11:23,309 --> 00:11:30,539
would have seen a different NASA if NASA

00:11:25,200 --> 00:11:32,850
could exist without next slide we have a

00:11:30,539 --> 00:11:34,588
lot more information on the website and

00:11:32,850 --> 00:11:35,610
it's given to you over there but I would

00:11:34,589 --> 00:11:38,190
be more than happy to take your

00:11:35,610 --> 00:11:40,830
questions I draw all right Thank You
battery and now to our NASA launch
director Tim Dunn 10 thank you George
I'm proud to be here today representing
the men and women of NASA's launch
services program and I'm thrilled to be
the launch director for the teachers k
mission as baudry mentioned the voice
and data communications of tedious
constellation bring back to earth every
day from the International Space Station
the Hubble Space Telescope and many of
our NASA science space craft it touches
each of our lives working alongside our
United Launch Alliance colleagues the
engineers and analysts of NASA LSP take great pride in redding teed risque to join this constellation nASA has a terrific record flying on Atlas 5 we've successfully launched seven missions on this rocket missions to Pluto Jupiter the moon the Sun the radiation belts and two spacecraft to Mars teachers k will be the eighth nasa mission on an atlas 5 and the 35th atlas 5 overall teachers k will launch on the atlas 5401 configuration vehicle from space launch complex 41 slick 41 is proud to have hosted 29 Atlas 5 launches to date now
I'd like to show a video of the ula crew building up the Atlas 5 launch vehicle and mating the teachers case spacecraft.

At slick 41 please roll the tape here's a nice shot of the Mariner ship that transports hardware from the UL a factory in decatur alabama this is a shot of the tdrs-k.

Second stage centaur being offloaded here at Cape Canaveral Air Force Station and transport it to the a sock.

Foreground testing a beautiful shot of the Antonov aircraft the Antonov is used occasionally Bayou La to transport the.
Rockets both the Centaur and the first stage here you see the tdrs-k first stage being offloaded at the skid strip at Cape Canaveral Air Force Station in being transported over to the same facility as centaur the a sock the Atlas spaceflight Operations Center for ground testing here we are early on the morning of January third in the fog out at the vith near slick 41 erecting the first stage on to the mobile launch platform you see the professionals of United Launch Alliance connecting the overhead crane from the vith and putting the first-stage booster in the vertical
286
00:14:18,100 --> 00:14:25,450
position you see the first stage engine

287
00:14:20,649 --> 00:14:30,069
there the party am Ross rd-180 engine

288
00:14:25,450 --> 00:14:34,450
thrust of 860 1,000 pounds being lowered

289
00:14:30,070 --> 00:14:36,280
donw onto that MLP on Saturday morning

290
00:14:34,450 --> 00:14:39,850
on the fifth of January we brought out

291
00:14:36,279 --> 00:14:42,159
the second stage the Centaur rolled it

292
00:14:39,850 --> 00:14:45,759
from the a sock out to the VIP for a

293
00:14:42,159 --> 00:14:50,079
same of erection activities as the first

294
00:14:45,759 --> 00:14:52,090
stage you'll see the erection sequence

295
00:14:50,080 --> 00:14:54,790
beginning here with the attachment and

296
00:14:52,090 --> 00:14:57,490
the second stage centaur is powered by

297
00:14:54,789 --> 00:15:01,319
the pratt & whitney rocketdyne RL 10

298
00:14:57,490 --> 00:15:04,990
engine with a thrust of 20 1,900 pounds

299
00:15:01,320 --> 00:15:07,240
you see it being carefully positioned on
to the forward end of the first stage

and lowered and made it into position

and here we are just over a week ago the

early morning hours of January twentieth

the tdrs-k spacecraft were encapsulated

in its payload fairing left the Astro

techn payload processing facility in

Titusville and made its way out to slick

41 at the viv formate to the Atlas 5

launch vehicle you see the encapsulated

assembly being lowered down onto the

forward end of centaur and mated the

teachers k launch campaign has gone very

well to date over the past week since
that teachers came eight the Atlas 5

team has been busy with launch preparations last Tuesday on the twenty-second of January we perform the final integrated systems test with the spacecraft and rocket together last Thursday the combined NASA and ula launch team held the Flight Readiness review where we assess the preparations and readiness of the Atlas 5 vehicle range assets and the teachers case spacecraft last Friday we performed a mission dress rehearsal to exercise and prepare the entire ula Air Force and
NASA launch team this morning we

00:16:23,659 --> 00:16:27,620
conducted the launch readiness review

00:16:25,100 --> 00:16:30,139
for the teachers k mission senior

00:16:27,620 --> 00:16:33,409
managers from NASA Kennedy Space Center

00:16:30,139 --> 00:16:36,169
Goddard Space Flight Center and NASA

00:16:33,409 --> 00:16:38,329
headquarters as well as ula and the Air

00:16:36,169 --> 00:16:41,329
Force assess the readiness of the rocket

00:16:38,330 --> 00:16:43,930
the spacecraft and all range assets to

00:16:41,330 --> 00:16:46,220
proceed with launch on Wednesday evening

00:16:43,929 --> 00:16:48,349
tomorrow we'll begin our final launch

00:16:46,220 --> 00:16:50,720
preparations at approximately 10 a.m.

00:16:48,350 --> 00:16:53,620
eastern time by rolling the Atlas 5

00:16:50,720 --> 00:16:56,120
vehicle on its mobile launch platform

00:16:53,620 --> 00:16:58,129
approximately one-quarter mile north

00:16:56,120 --> 00:17:01,310
from the VF to the launch mount at slick
1 will then fill the first stage fuel tank with highly refined kerosene known as rp1 on Wednesday the launch team will begin arriving on console in the afternoon hours eastern time the crew will perform all final preparations for vehicle power on and electrical checks beginning in the afternoon hours about 130 p.m. Eastern will follow that later in the day about 6pm with cryogenic tanking of first stage liquid oxy as well as the second stage sent our liquid oxygen and liquid hydrogen final engine sloughs will be performed after
tanking and then we'll be ready for launch wednesday evening at eight 48 p.m. eastern time with a 40-minute launch window in summary the Atlas 5 rocket and range equipment is ready and the combined government and contractor launch team is prepared and excited to launch this critical national asset the teachers case spacecraft back to you George thank you Tim and not a Vernon Thorpe the program manager for NASA missions from united launch alliance burn hey thank you George ula is honored to be here today just two days from the
launch of the teachers cave satellite

since we began building this vehicle in Decatur Alabama nearly two years ago and

through all of the engineering the production and all of the processing

down here at the launch site we worked with NASA and our other mission partners to get us to this point and on Wednesday to a successful launch the vehicle that was prepared in just 27 days from its arrival at Cape Canaveral Air Force Station that's a record processing time for an Atlas 5 vehicle when the Atlas 5 program started
a typical processing time was on the
386
00:18:46,980 --> 00:18:51,509
order of 60 to 90 days it has the team
387
00:18:49,799 --> 00:18:53,819
gained more experience we were able to
388
00:18:51,509 --> 00:18:56,009
get that down to as few as 44 days in
389
00:18:53,819 --> 00:19:00,149
the past the forty percent reduction
390
00:18:56,009 --> 00:19:02,460
down to 27 days was possible due to the
391
00:19:00,150 --> 00:19:04,080
growing continue growing experience of
392
00:19:02,460 --> 00:19:08,009
our team and also the results of a major
393
00:19:04,079 --> 00:19:10,230
initiative in 2012 to reduce processing
394
00:19:08,009 --> 00:19:12,809
time without adding any technical risk
395
00:19:10,230 --> 00:19:14,880
but we call this initiative launched
396
00:19:12,809 --> 00:19:17,009
span reduction and it offers our
397
00:19:14,880 --> 00:19:20,250
customers added manifest flexibility to
398
00:19:17,009 --> 00:19:21,869
meet their schedules and it also offers
399
00:19:20,250 --> 00:19:23,609
additional launch opportunities to
ensure that payloads can be launched on time and reliably in fact as a result of reducing our spam times we were actually able to insert an additional mission into our 2013 manifest teachers k will be the first of 13 ula launch is planned in 2013 as Tim mentioned it'll be the 35th Atlas 5 mission it will also be the 67th mission that ula has flown to date this mission will be launched aboard an atlas 5401 which uses the four-metre metallic payload fairing it has a booster powered by an rtm Ross rd-180 engine and the
Centaur upper stage will have a single

pratt & whitney rocketdyne RL 10 a dash

for engine this mission will not require

the use of any solid rocket boosters and

now I'd like to show an animation that

will give you a preview of what we

expect to see on Wednesday evening

that's what the Atlas 5401 will look

like on the launch pad and at liftoff

the booster engines will generate almost

900,000 pounds of thrust to get the

vehicle off the ground and for this

configuration without SRBs the first

major event that you'll see during the
flight will be about 4 minutes in when

we've depleted the propellants in the

booster stage and we shut down the

booster main engine you'll see that

coming up here shortly once we shut down

the booster engine will separate from

the Centaur upper stage about six

seconds later right there and we will

begin preparing for the first of two

sent our main engine burns the first

burn for this mission will last

approximately 14 minutes 10 seconds into

that burn will jettison the payload

fairing since we're pretty much out of
the atmosphere by that point and that 14

00:21:18,269 --> 00:21:22,230
minute burn will put centaur with the

00:21:19,859 --> 00:21:24,269
teacher spacecraft into a very highly

00:21:22,230 --> 00:21:26,490
elliptical orbit the perigee will be

00:21:24,269 --> 00:21:28,440
about 99 nautical miles but the apogee

00:21:26,490 --> 00:21:31,740
at that point will be over 13,000

00:21:28,440 --> 00:21:33,900
nautical miles following that first burn

00:21:31,740 --> 00:21:35,490
will coast for 82 minutes then we'll do

00:21:33,900 --> 00:21:37,410
the second burn that you see here that

00:21:35,490 --> 00:21:38,880
second burn will only last about a

00:21:37,410 --> 00:21:41,250
minute and that will put us into a

00:21:38,880 --> 00:21:43,620
geosynchronous transfer orbit six

00:21:41,250 --> 00:21:45,839
minutes after that second burn we will

00:21:43,619 --> 00:21:48,719
reorient and separate the teacher

00:21:45,839 --> 00:21:50,730
spacecraft total mission duration up to
that point will be about an hour and 46 minutes and then following that separation event we will perform the normal contamination in collision avoidance maneuver and put the Centaur and it was safe orbit so there's no chance of recontact with the spacecraft ula is proud to serve a critical role in delivering NASA payload to orbit and we're focused on perfect product delivery for this and every mission we launch for NASA and our other customers our focus is on successfully delivering important capabilities to
orbit launch is just the beginning of

the satellites journey and the addition of teachers k to the overall constellation will continue the successful legacy of the project and strengthen NASA's communication system that's so vital vital for the International Space Station and many other satellites that are in orbit today and will be in orbit in the future in fact even the Rockets that launch these satellites rely on the teachers constellation for receiving and returning the telemetry data to help us
understand how to make these rockets

function even better in the future once

again I'd like to say thank you to all

of our mission partners and with that

I'll turn it back to you George all

dress k and to discuss the satellite is

jeffrey Grambling the nasa Tigres k

project manager thank you George and

good afternoon everyone we're very

excited to be here this week to launch

the teachers k satellite this will be

the eleventh teedra satellite that we've

launched but it's been a long time it's


been ten years since we launched the

last one we launched tea dress h in two

thousand and I and J both in 2002 hij

and the KLM series of spacecraft of all

been built by boeing in El Segundo

California so we arrived at the Cape

about December eighteenth and I've got a

video here to show you what's what's

transpired since we've gotten here so if

we can roll the video

so what you see here is the spacecraft

was flown on a c-17 provided by the Air

Force and it landed at the Kennedy

shuttle landing facility and we're

offloading here
and that's the shipping container which was then taken to Astra tech in Titusville where we did spacecraft processing which included testing fueling you can see it very delicate operations to unpack the spacecraft and mount it on the test fixture so at this point obviously the spacecraft arrived with a solar single access antennas furled for shipment to the cape and then also will remain stowed until we were encapsulated and then deployed
after we separate from the Centaur on orbit but you can see the two single access reflectors fold and one inside the other there and here of course you can see the two halves of the payload fairing being encapsulating the spacecraft and and then we we rolled out about a week ago the more than a week ago we rolled out from master tech and we're transported to the VIP and you saw the footage that Tim showed of us being wasted and then made it on top of the Atlas centaur stack so things have been going very well since we arrived in
December eighteenth the spacecraft is is ready and I've got one more clipped of kind of fill in the gaps Tim or burn showed you the the sequence to up until we've got one animation that kind of shows you what happens after that which is interesting I think so as I mentioned after we separate from the Centaur the first thing that we do is is unfold the the single access antennas so they don't take a set their composite fiber that Boeing designed for this mission back on hij and here you can see the single
access well first thing you saw was a solar array one solar a being deployed

and then the two single access antenna booms and then the second solar array following that right now you see is the forward Omni being deployed and then the last deployment that you're seeing is the space ground link antenna which is the antenna that points at White Sands New Mexico where our ground station is the two large single access antennas or the high bandwidth channels that we have to user space craft such as a Space Station Space Telescope and those are gimballed and they track the users to
allow for the high bandwidth data

connection that we provide

so that said we're excited to go

Wednesday where we're ready and

following our successful launch we've

got about a 10 day transform until we

get to geosynchronous altitude during

that time we're controlled out of the

Boeing Mission Control Center in El

Segundo following deployments we hand

over to the teachers ground station in

White Sands New Mexico and from there we

do about three months of on-orbit test

and calibration following orbit test and
calibration will they'll be an on-orbit acceptance review and then the spacecraft will be drifted to it's on operational location but it doesn't end here what's coming up next for our our project and and our Boeing teammates are we're finishing up the teedra cell spacecraft it will go into storage within the next two months and we'll be back here hopefully about a year from now launching on another Atlas 5 mission to launch tigre cell and we continue to work towards a tee dress em and we're ready to go with tea dress em in
December of 2015 so thank you thank you

thank you Jeff and he'll look now at

Wednesday's weather launch weather

officer Joel chaambi olo for the 45th

weather squadron jolt thank you George

and good afternoon everyone this time of

Florida the main things that we track or

cold fronts typically on average move

through the state Oh roughly every four

or five days and when we're approaching

a launch campaign obviously the timing

of these cold fronts moving through the

state directly impacts what kind of
weather we can anticipate this mission

is no different we will be tracking a
cold front right now if you can see the
satellite picture basically that the
system well up to the north west of that
picture is really the entire weather
system that will basically be organizing
and pushing a cold front through us and
right now the timing of that cold front
again timing is critical when we are
comparing it or approaching a launch
right now the timing of this front has a
moving through the area on a very early
hours on Thursday after the launch
window now during kind of starting on
Tuesday as far as that I roll out to the pad what we can expect in terms of our local weather conditions will be very similar to what we're seeing today we're going to see breezy south easterly winds could be an isolated shower or two in the area tomorrow but we're not really anticipating any weather significant weather impacts as far as rolling out to the pad moving on to wednesday during the day again that cold front that I mentioned will be approaching in northwestern portions of the state and will be over north central florida
during the afternoon and evening hours

with that our local weather conditions

will continue to be breezy the winds

will be shifting and kind of a compared

to what they are now they'll be shifting

in a clockwise fashion to more of a

south and south westerly direction on

Wednesday afternoon again we could have

a few showers pop up ahead of the main

frontal band during the afternoon hours

on a friday or on wednesday wednesday

evening but right now we're looking at a

forty percent chance of having one of

our weather rules being violated during
the launch window again we're not

anticipating the frontal passage until

after the launch window until after

midnight early morning hours on Thursday

and again we'll be tracking all the

weather out ahead of that front so to be

a little bit more specific in terms of

weather conditions that during the

launch window again we're going to have

a couple scattered are a couple cloud

decks ask a low scattered deck at around

3,000 feet and a more broken overcast

type deck at around twenty six thousand

feet the visibility's should be good the

visibility's should be good the
winds will be breezy the fact it will be

00:31:11,680 --> 00:31:15,940
windy on wednesday the wind direction

00:31:13,569 --> 00:31:18,549
will be 190 degrees which is just

00:31:15,940 --> 00:31:20,740
slightly southwest of due south they're

00:31:18,549 --> 00:31:23,889
slightly west of due south and right now

00:31:20,740 --> 00:31:26,309
the forecast is for 24 knots with gusts

00:31:23,890 --> 00:31:28,960
up to 28 knots during the launch window

00:31:26,309 --> 00:31:30,909
for your information the launch one

00:31:28,960 --> 00:31:34,420
constraint based on that wind direction

00:31:30,910 --> 00:31:36,279
is thirty-three knots there will be some

00:31:34,420 --> 00:31:36,640
isolated showers in the area again we

00:31:36,279 --> 00:31:38,769
could f

00:31:36,640 --> 00:31:40,900
showers pop up ahead of the main frontal

00:31:38,769 --> 00:31:42,970
boundary which again is not expected

00:31:40,900 --> 00:31:45,070
until after the launch window the
temperature at during the window will be around 70 degrees and again as i mentioned we're looking at a forty percent chance of having one of our weather rules being violated the two main ish the two main rules will be going to watch it as the cumulus cloud rule and the disturbed weather rule those are the two natural and trigger lightning constraints that we'll be watching in and also in terms of ground wins again it will be windy that day but based on the direction we're not anticipating a ground wind violation
again the front moves through after the launch window and if we do need to go into a 24-hour slip into Thursday evening the front again will be well to our south the main issue on the next day will be the winds it'll still be windy but the key there is that the wind direction will be more out of the north and northwest now from that direction and one constraint is only 25 knots and because of that and we could have some lingering post frontal thick clouds in the area but the main issue for the next day if that were to be needed would be
the ground winds there's a sixty percent chance that we would have a ground wind violation for the 24-hour slip as our forecast for the winds that day will be twenty gusting up to 25 knots with a wind direction of 350 degrees and again the wind constraint for that day is 25 knots so there is that going to be that threat and it will be cooler the next day hence the cold front moves through it'll be in the low to mid 60's so with that and to scan in summary we're going to be tracking a cold front hopefully things will go as scheduled won't be
able to beat the front through but again

00:33:22.990 --> 00:33:25.359
that's well the thing that we're going

00:33:24.160 --> 00:33:27.910
to be tracking throughout the day on

00:33:25.359 --> 00:33:30.250
Wednesday into a Wednesday night thank

00:33:27.910 --> 00:33:32.800
you George thanks Joel we're ready now

00:33:30.250 --> 00:33:34.690
to take questions please give your name

00:33:32.799 --> 00:33:36.279
and affiliation when the microphone gets

00:33:34.690 --> 00:33:38.730
to you and start here in the front with

00:33:36.279 --> 00:33:40.589
Marcia Marcia Dunn Associated Press a

00:33:38.769 --> 00:33:44.019
couple of questions for mr. Grambling

00:33:40.589 --> 00:33:46.539
are you going to be putting this newest

00:33:44.019 --> 00:33:48.730
teachers into service will it be a spare

00:33:46.539 --> 00:33:50.589
what what are your near-term plans for

00:33:48.730 --> 00:33:54.339
it's in its proper orbit in checked out

00:33:50.589 --> 00:33:56.798
I believe the near term plan is to drift
it to 171 west where we'll be put into

service for some period of time and
tested with with users for a little
while longer after that I think will be
reevaluated at some point and whether it
stays in service or goes into storage as
a backup will that be when will be going
into service dude how many months after
launcher we we compete complete our
honor of a test program about three
months after launch and then we would
begin operations to drift it to like I
said 171 West where we would put it into
service for some period of time to test
with users I imagine within you know two
or three months after that the decision
would be made about whether it stays in
service or it goes into min to storage
right and I saw in the press kit that
the teachers KL plus the White Sands
modifications cost about 715 million
could you sort of break that down to the
specific satellite if possible so for
teachers k the the portion of that is
about 350 to 400 million of that doesn't
include launch vehicles but it it
depends on how we break out the non
recurring cost and spread it between
teachers K&L and how we account for

project office costs but would be

somewhere in the 350 to 400 million

range rocket great desert rocket costs

I’m sorry does not all right thank you

there's no questions

over here bill this is bill Hartwick CBS

News none of this is probably spelled

out in the press kit obviously but again

I teachers question I remember when the

first one went up way back when aboard

challenger I guess and then you've had

this series since then is there a way to

in late terms to talk about the

this series
capability of this vehicle versus the

00:35:47,730 --> 00:35:52,559
originals are they pretty much roughly

00:35:49,650 --> 00:35:54,690
the same now compared to then sure so

00:35:52,559 --> 00:35:56,909
you're right the we launched the first

00:35:54,690 --> 00:35:58,710
teachers back in 1983 and the first

00:35:56,909 --> 00:36:01,379
seven were launched on on the space

00:35:58,710 --> 00:36:06,500
shuttle the last space shuttle launch

00:36:01,380 --> 00:36:09,269
was 1995 that was f seven so that that

00:36:06,500 --> 00:36:11,699
version of the Tigres if you will was

00:36:09,269 --> 00:36:14,519
was fairly similar to what we're flying

00:36:11,699 --> 00:36:16,829
today we had the single access the two

00:36:14,519 --> 00:36:18,329
single access antennas that had s been

00:36:16,829 --> 00:36:21,210
and K you banned and then we had the

00:36:18,329 --> 00:36:26,369
s-band multiple access phased array when

00:36:21,210 --> 00:36:28,860
we got to the hij series in 1995 was
when we awarded the contract the the

only change we made was we added ka-band

services to the single access reflectors

that's a higher bandwidth service and we

continue to fly those that service on

the ke spacecraft that will be flying

this week the other changes we made from

from the hij series or the change we

made from the hij series was on the 1

through 7 spacecraft we did the

beamforming for the return s-bend phased

array antenna on the ground on hij we

did the beamforming on the spacecraft
well there the uses there have been novel uses of the system that have evolved over time and one of those novel services was a demand access service and it turns out to do the demand access service we need to form the beam on the ground so for the KLM series we've reverted back to you know ground-based beamforming for the s-band I multiple-access return system you're welcome any other questions here I think we have one on the line from Marion Kramer from space news go ahead hi yeah this is Marion crane aerospace
00:37:39,219 --> 00:37:47,798
com um I am mostly here so how many tier

828
00:37:45,338 --> 00:37:50,558
dress satellites have been in orbit how

829
00:37:47,798 --> 00:37:53,500
many are still in orbit and what is a

830
00:37:50,559 --> 00:38:00,220
life expectancy on the oldest one at the

831
00:37:53,500 --> 00:38:02,858
moment so this is jeff Grambling again

832
00:38:00,219 --> 00:38:06,518
we like i said we launched the first one

833
00:38:02,858 --> 00:38:08,889
in 1983 the life design life of the

834
00:38:06,518 --> 00:38:13,949
first tee dress spacecraft and those

835
00:38:08,889 --> 00:38:17,739
were trw spacecraft now Northrop Grumman

836
00:38:13,949 --> 00:38:20,038
ten year design life beginning an hij

837
00:38:17,739 --> 00:38:23,348
though it's been a 15 year design life

838
00:38:20,039 --> 00:38:25,930
to yourself one actually lasted 27 years

839
00:38:23,349 --> 00:38:28,390
on orbit so that that has been retired

840
00:38:25,929 --> 00:38:32,159
for a few years now and we've since

841
00:38:28,389 --> 00:38:37,690
retired one other teedra spacecraft f4

00:38:32,159 --> 00:38:41,259
so of the 10 we've launched we've

00:38:37,690 --> 00:38:43,509
retired to and all of the f 1 through 7

00:38:41,259 --> 00:38:48,068
spacecraft have have lasted well beyond

00:38:43,509 --> 00:38:49,539
design life f 3 i'm not sure i remember

00:38:48,068 --> 00:38:52,929
right off the top of my head what its

00:38:49,539 --> 00:39:02,588
predicted end of service date is but

00:38:52,929 --> 00:39:01,268
like i said we're well beyond design

00:38:55,088 --> 00:39:02,588
life and that's been good for us i'm not

00:39:01,268 --> 00:39:04,629
sure if i answered your question

00:39:02,588 --> 00:39:06,568
completely no you did it was great

00:39:04,630 --> 00:39:10,298
thanks

00:39:06,568 --> 00:39:12,699
any other questions here in the newsroom

00:39:10,298 --> 00:39:15,579
Marcia I'm wondering when will it be

00:39:12,699 --> 00:39:19,478
renamed to teachers 11 what at what
point will that be I believe the

convention is and I'll have to check on

this is once we accept it on orbit and

put it into service we would start

calling it f11 any additional questions

all right and that event a couple of

programming notes you can follow the

launch as we go along on Twitter on

hashtag Tigres and on the web at

nasa.gov slash t dress and our launch

coverage on nasa TV on wednesday will

begin at six fifteen p.m. eastern time

and will conclude now we'll wrap up the

briefing and go to a programming feature
on space tracking and thank you very much 30 years ago NASA launched into a new era of high bandwidth continuous space communication with the tracking and data relay satellite tea dress today NASA is continuing this legacy by launching the first of the next generation of satellites teachers k nor at Cape Canaveral the teeters k spacecraft sits atop an Atlas 5 rocket ready for launch three two one and liftoff the Atlas 5 rocket David release teachers game after a four-minute burn
the Atlas 5 main engine separates from
the Centaur engine and drops back to
earth shortly after separation of the
main engine the protective shield that
covers the payload of the ferry
separates to reveal the teachers k space
to geosynchronous transfer orbit the
teacher spacecraft separates from the
Centaur engine shortly after this
separation the two folded single access
antenna reflectors are released to take
their natural parabolic shape once
arriving in geosynchronous orbit the
spacecraft starts its deployment
sequence by unfolding the first solar array next the two single access antennas are deployed and locked into position these antennas are designed to track and communicate low-earth orbit satellites after the single access antennas are secured into place the second solar array starts to unfold and the SGL and ambient Enna's are deployed once teachers k completes this deployment sequence it's now ready for a three-month period of testing and calibration before being placed into service with this addition of teachers k and the upcoming launches of teachers L
and NASA has assured the future of continuous space-to-ground communication