good afternoon everyone these are the pre-launch briefings for our Taurus XL glory and alanna missions and we'll be having three briefings today our first briefing will be the pre-launch news conference will follow that with a glory mission science briefing and then we'll conclude with a briefing on Alana so we'll start now with our pre-launch news briefing on the Taurus XL glory launch coming up on Wednesday morning we'll begin first with joy Bret how're the glory program executive from NASA headquarters in Washington then we will
15 00:00:44,820 --> 00:00:50,789
hear from Omar Baez the NASA launch

16 00:00:48,509 --> 00:00:54,890
director for this mission from the

17 00:00:50,789 --> 00:00:58,109
Kennedy Space Center will hear next from

18 00:00:54,890 --> 00:01:00,090
John brunch Weiler the Taurus program

19 00:00:58,109 --> 00:01:05,338
director from orbital sciences

20 00:01:00,090 --> 00:01:07,560
corporation Brian Saffold the glory

21 00:01:05,338 --> 00:01:11,359
project manager from the Goddard Space

22 00:01:07,560 --> 00:01:13,950
Flight Center and first lieutenant

23 00:01:11,359 --> 00:01:16,289
Benjamin waar the launch weather officer

24 00:01:13,950 --> 00:01:19,500
from the 30th weather squadron at

25 00:01:16,290 --> 00:01:22,680
Vandenberg Air Force Base and will again

26 00:01:19,500 --> 00:01:25,560
first with our program executive joy

27 00:01:22,680 --> 00:01:28,549
brent our joy thank you George I’d like

28 00:01:25,560 --> 00:01:31,350
to have the first graphic posted please

29
now I'll start by talking about why

30

now I'll start by talking about why

31

be coming up as I'm speaking Gloria is

32

the next launch in the president's

33

climate initiative to address key

34

climate problems and as NASA's next

35

Earth observing science research mission

36

that will join 13 other earth science

37

missions that are currently orbiting and

38

operating Gloria will improve our

39

understanding of how the Sun and tiny

40

particles called aerosols affect Earth's

41

climate changes the scientific knowledge

42

obtained from glory will enable

43
researchers to better understand the

**44**
00:02:04,649 --> 00:02:09,719
effects of aerosols and solar irradiance

**45**
00:02:07,078 --> 00:02:12,379
on climate and more accurately predict

**46**
00:02:09,719 --> 00:02:15,379
the future of Earth's climate changes

**47**
00:02:12,379 --> 00:02:17,530
as global climate and weather affect our

**48**
00:02:15,379 --> 00:02:20,719
natural resources and impact our lives

**49**
00:02:17,530 --> 00:02:22,879
this understanding is also essential for

**50**
00:02:20,719 --> 00:02:24,560
making scientifically based policy

**51**
00:02:22,879 --> 00:02:27,500
decisions that are related to

**52**
00:02:24,560 --> 00:02:30,349
environmental change NASA's rigorous

**53**
00:02:27,500 --> 00:02:32,240
standards processes practices and

**54**
00:02:30,349 --> 00:02:34,879
testing have prepared both the

**55**
00:02:32,240 --> 00:02:37,610
observatory and the launch vehicle for

**56**
00:02:34,879 --> 00:02:40,039
the upcoming glory mission our panel

**57**
00:02:37,610 --> 00:02:41,690
here represents the combined efforts of
people all across our nation's
supporting the glory mission through the
dedicated team work of government
industry and academia we are on track
for launching glory as Glory's program
executive for the earth science division
I am responsible for the overall
technical cost schedule and program
management of the glory mission for NASA
headquarters project management for the
glove for the glory mission is provided
by NASA's Goddard Space Flight Center
later today and a separate science
briefing will have the glory mission
scientists further explained the mission.

science the taurus XL launch vehicle was procured through NASA's launch services program at Kennedy Space Center the orbital sciences corporation is both the spacecraft integrator and the launch services provider after the Taurus XL rocket launches the glory observatory it's go into an earth observing orbit where it will then ascend into the afternoon constellation and become what has become the sixth satellite to join what is also known as the a-train the glory observatories design supports
three years of on-orbit operations the

low Earth orbit a trained constellation

consists of multiple spacecraft flying in close proximity and is the first ever super observatory to provide

near-simultaneous observations of the earth including land atmosphere and ocean I'd like to have an X graphic posted please

that's coming up the glory mission responds to the Intergovernmental Panel on Climate Change by continuing and improving nasa's earth science research of climate change changes in the
composition of earth's atmosphere or in

101 00:04:29,050 --> 00:04:34,240
color radiance can lead to global

102 00:04:30,790 --> 00:04:37,420
climate change the glory mission has two

103 00:04:34,240 --> 00:04:39,340
science objectives one objective is to

104 00:04:37,420 --> 00:04:41,439
use Glory's highly accurate and Sun

105 00:04:39,339 --> 00:04:43,479
pointing total a radiance monitor

106 00:04:41,439 --> 00:04:45,779
instrument to continue our critical

107 00:04:43,480 --> 00:04:48,550
32-year record of measuring the sun's

108 00:04:45,779 --> 00:04:51,129
direct and indirect effects on climate

109 00:04:48,550 --> 00:04:53,470
by determining the sun's major effect on

110 00:04:51,129 --> 00:04:55,060
climate this will enable researchers to

111 00:04:53,470 --> 00:04:58,600
better understand the Earth's energy

112 00:04:55,060 --> 00:04:59,949
budget the second objective is to use

113 00:04:58,600 --> 00:05:02,080
the first-ever measurements of

114 00:05:02,080 --> 00:05:04,209
polarization from Glory's aerosol
polarimetry sensor instrument to increase our understanding of how natural and man-made aerosols impact the Earth's climate. LORI is NASA's first satellite that will make unique highly accurate measurements of light properties as a means of identifying the size, shape, and composition of aerosols. Now as far as what our aerosols are: tiny airborne solid or liquid particles, size from nanometers to micrometers that may be either natural or man-made in origin. I'd like to have an x graphic examples of natural...
sources of aerosols include desert dust

as is illustrated here and the next

graphic please and volcanoes while

man-made sources of aerosols come from

sources like air pollution and

intentionally burning trees all of which

depending upon their contribution

contribute to either the warming or the

cooling of the earth the largest

uncertainty in our understanding of the

Earth's climate is the aerosol climate

effect Lori will help researchers better

understand how aerosols influence solar

energy in the Earth's system there with
along with these under certainties there are uncertainties associated with the formation of clouds as well as properties associated with clouds. glory will also help us to improve atmospheric models that predict aerosol transport while remaining airborne for at most a couple of weeks these tiny particles can be transported thousands of miles across the globe glory will aid in understanding will aid the distribution of both natural and man-made aerosols as well as how they

interact with other components in the atmosphere as they are transported globally and effectors climate in summary the glory mission will provide the highly accurate aerosol and solar irradiance measurements that are vital to improving climate models and more accurately predicting Earth's future climate all of which are essential resources for making scientifically based economic health & policy decisions related to environmental change and with that I'll turn it back over to George hi thank you joy and now we'll go to Omar Baez who is the NASA launch director
from the Kennedy Space Center dr.

upcoming flight Omar thank you George

good afternoon everyone and thank you

for attending today's brief I'm very

fortunate to be here representing scores

of men and women from NASA and a launch

services program an orbital science and

the launch systems group these folks

have worked a lot of long difficult

hours in the past two years getting

through tourists return to flight

activities and preparing glory and

alanna for launched is Wednesday morning

if you could please roll a little video
we have for you the Taurus shares a lot of commonality with the Pegasus launch vehicle minus the wing and a state zero which is the l-1011 this is stage zero for the tour as you're seeing in this role here the state zero is a caster 120 motor provides upward of three hundred and sixty thousand pounds of thrust it's being hoisted onto a pedestal at 576 see and what you see here is the combined glory spacecraft the third stage the second stage and the first stage it's all bolted onto the state 0 and as you can see we depend on a lot of mobile
cranes bucket trucks and and scaffolding

to put that whole stack together it's a

very austere operation I'd like to say

it sits in the minimalist style or feng

shui very clean pad this morning we held

our launch readiness review we have

absolutely no actions we're clean green

and ready to go the operation tomorrow

night takes about four hours we have two

built-in holds during the countdown one

that occurs at t-minus 45 minutes and

lasts for 15 minutes and one at t-minus

12 minutes at last 45 minutes our launch

management team will be on station at
about 10pm local the folks will then

configure the facility and range we will

power up the launch vehicle and go

through the power systems checks and the

flight termination systems check out!

will conduct my first pole at

minus 56 minutes in anticipation of

coming out of the hold at t-minus 45

minutes I will perform my second pole

prior to coming out of the hold at

t-minus 12 minutes the spacecraft will

then transfer to internal power for its

final flight configuration and at

t-minus five minutes I will give my

concurrence to launch at t-minus one
minute and 30 seconds the auto sequencer is initiated and will configure the vehicle for launch. We have a 47-second window tomorrow and we are targeting the middle of that window which is 20,943 local. Back to you, George.

All right. Thank you, Omar, and now to John Brunch Weiler, the Taurus program manager from Orbital Sciences Corporation. John, thank you, George. First, it's an honor to be here and I'd like to thank NASA for giving us the opportunity to carry the Glory spacecraft into orbit.

But I want to tell you a story and in
fact I recognize some faces of the press

out here two years ago almost to the day

we were here with great enthusiasm of

the OC omission it didn't turn out very

well I mean it was quite a

disappointment for all of us in the

science community NASA orbital and and

many individuals that worked on that

mission so what's been happening over

the last two years in fact immediately

after the failure NASA and orbital in as

a team formed an investigation team we

went through the data from the flight

determine what the problem was and this

this is a long process we ended up then

coming to a pretty robust system for the

fairing deployment and that was the that

was the issue that failed the mission

for ocio as a result of all the

engineering work retests testing every

subsystem of this fairing we arrived

here today with a proven flight proven

in fact the same system that we're

flying in 37 hours has flown three times

already on another orbital vehicle

that's the minutes are for so we know

that the basic design works very well

now that wasn't the only thing we ended

now that wasn't the only thing we ended
up doing both Kennedy and orbital not

00:12:23,240 --> 00:12:28,070
only looked at the fairing which was a

00:12:25,669 --> 00:12:29,299
problem but the entire vehicle we wanted

00:12:28,070 --> 00:12:33,770
to make sure we didn't miss anything

00:12:29,299 --> 00:12:36,740
else it looked stem to stern and and

00:12:33,769 --> 00:12:39,559
fixed all that we could it was quite an

00:12:36,740 --> 00:12:41,710
effort and from that I think we have

00:12:39,559 --> 00:12:44,719
great confidence going into the launch

00:12:41,710 --> 00:12:46,639
event now if you want to if you could

00:12:44,720 --> 00:12:48,019
pull up the the first image and I'll

00:12:46,639 --> 00:12:50,299
tell you a little bit more about the

00:12:48,019 --> 00:12:53,419
torus and you can kind of visualize some

00:12:50,299 --> 00:12:54,829
of these elements now Omar he talked and

00:12:53,419 --> 00:12:57,649
showed you a video about how the

00:12:54,830 --> 00:13:00,410
Assembly of the vehicle happens there's
really three major components on your left there is the stage zero as Omar indicated that's put on the stand first at the lawn site and then the picture in the center there is the upper three stages which are put together and tested inside a building here on Vandenberg by orbital and then probably the most well one of a lot of interest is the image on the right that's the fairing so that the fairing that you see there we deliver to a clean facility called the payload processing facility at Vandenberg and
what that does is it puts it in a clean

room and meets the spacecraft there so

if you could put the next image up

please on the right you can see where

the glory spacecraft has been mated to

the top of the tourist structure with

the half of the fairing around it now

what that does will add the other half

of the fairing within that clean

environment and that provides a humidity

temperature contamination control for

the spacecraft and you do that in a

clean area because as you've seen so far

of this pad when it goes down to the
00:14:10,909 --> 00:14:18,439
site you get wind rain dry air wet air

315
00:14:16,269 --> 00:14:21,139
we've only had one rattlesnake

316
00:14:18,440 --> 00:14:22,430
rattlesnake citing this time last time I

317
00:14:21,139 --> 00:14:24,110
think we had a couple of frogs and a

318
00:14:22,429 --> 00:14:25,819
rattlesnake so there there are some

319
00:14:24,110 --> 00:14:28,430
things to avoid and this by

320
00:14:25,820 --> 00:14:32,360
encapsulating the payload it keeps that

321
00:14:28,429 --> 00:14:35,269
safe now we have another passenger with

322
00:14:32,360 --> 00:14:39,409
us the Alana and you can see that on the

323
00:14:35,269 --> 00:14:41,750
lower left it's it's sort of in a

324
00:14:39,409 --> 00:14:44,419
curious spot your typical satellite

325
00:14:41,750 --> 00:14:46,909
rides at the top of the rocket nose cap

326
00:14:44,419 --> 00:14:49,429
comes off and then the satellites out

327
00:14:46,909 --> 00:14:52,730
front well that's the case for glory but

328
00:14:49,429 --> 00:14:54,259
the Alana spacecraft assembly if you

00:14:52,730 --> 00:14:56,840
will it's actually a carrier called a

00:14:54,259 --> 00:14:59,179
pea pod with three small cube SATs which

00:14:56,840 --> 00:15:01,610
you'll hear a lot more about at a later

00:14:59,179 --> 00:15:03,549
briefing following I think a couple more

00:15:01,610 --> 00:15:06,950
briefings here it's the last one today

00:15:03,549 --> 00:15:10,009
but it's behind it actually faces aft

00:15:06,950 --> 00:15:11,750
during flight and it's next to our stage

00:15:10,009 --> 00:15:16,159
three nozzles so you can kind of see

00:15:11,750 --> 00:15:17,480
that nozzle in the picture and well I'll

00:15:17,480 --> 00:15:22,769
just continue a little bit more it's

00:15:19,919 --> 00:15:19,920
kind of interesting we actually put a

00:15:18,919 --> 00:15:22,769
thermal protect

00:15:19,919 --> 00:15:26,789
system around this pea pod canister for

00:15:22,769 --> 00:15:28,919
the Alana mission to protect against any
heating that may occur from the stage
three nozzle and all kinds of again lots of analysis we have gone over every aspect of the vehicle every aspect of the mission if you can show up the next slide please so this is the way it's going to look uh probably later today and certainly tomorrow for day of launch nice clean pad we've taken off all the protective covers and and we enter into the two the count as Omar described and once we get to t0 be sure to listen there's a few key events you're going to hear lift off and then
depending on where you are if you're local here you'll actually they'll be quite a bit of a delay before you actually feel the rumble of the stage zero engine so don't be alarmed if you see the flame but it's you know where's the sound it's coming don't worry if you're listening to the countdown you'll also hear call outs of state zero burnout stage one stage 01 separation stage 1 ignition as we drop these stages away because we burn the propellant get rid of the weight and then on to the next stage there's probably a key event
that's happening that certainly I'm going to be listening for and that is about three minutes into the mission and you'll hear confirmation of fairing separation so that's certainly I'm going to be listening for that I know a lot of others are to 13 minutes later the glory spacecraft will reach orbit at the end of our rocket and we will gently push it away and then 10 seconds after that the Alana peapod canister will open and then the 3p pods come out and then our mission is done so you know we're about two days away from the end of this story
at least my story and and then the

beginning of the spacecraft so back to

you George alright thanks John and for

that spacecraft story would go to Brian

faithful the glory project manager from

NASA's Goddard Space Flight Center Brian

thank you George like the

everybody for being here today and tell

you how excited we are for the launch of

glory I'm happy to report that we

finished all our processing here at

Vandenberg and glory is ready for its

launch early Wednesday morning if you

could start the first animation I'd like

to talk a little bit more about the
400
00:17:50.109 --> 00:17:54.879
mission itself as Joe mentioned Gloria

401
00:17:53.170 --> 00:17:59.560
is a key part of NASA's climate research

402
00:17:54.880 --> 00:18:01.390
program and it will join other five

403
00:17:59.559 --> 00:18:03.000
other satellites in the afternoon

404
00:18:01.390 --> 00:18:05.710
constellation that are earth-observing

405
00:18:03.000 --> 00:18:07.210
Gloria is a unique satellite in that is

406
00:18:05.710 --> 00:18:10.779
really two very different scientific

407
00:18:07.210 --> 00:18:14.100
missions in one it contains a Sun

408
00:18:10.779 --> 00:18:16.869
pointing instrument that will continue a

409
00:18:14.099 --> 00:18:18.609
that will measure solar energy and an

410
00:18:16.869 --> 00:18:21.429
earth pointing instrument that will love

411
00:18:18.609 --> 00:18:22.990
study aerosols the total irradiance

412
00:18:21.430 --> 00:18:24.700
monitor was built by the University of

413
00:18:22.990 --> 00:18:26.500
Colorado's laboratory for atmospheric
and space physics in Boulder Colorado.

and it will continue an uninterruptedly year spaceborne data record of the total solar irradiance measurement while the aerosol polarimetry sensor built by Raytheon space and airborne systems in El Segundo California will help scientists better understand the role of both man-made and naturally occurring aerosols in the atmosphere the APS instrument is also supported by two cloud cameras which were built by ball aerospace and technology corporation also in Boulder Colorado which will
assist ApS science in cloud clearing

activities supporting the instrument

suite is the glory spacecraft glory

spacecraft is from an existing NASA program that was terminated many years ago it's been extensively modified and refurbished that work was completed by Orbital Sciences Corporation in Dulles Virginia the same folks that will be flying orbital as we after we launch for the operations phase of this mission if we could go to the next graph next I'll video I like to talk a little bit about the processing that we had here at
Vandenberg and tell you what to expect

after we separate from the tarts vehicle

itself we arrived at Vandenberg on January 11th after a three-day journey

across the

after a very quick inspection of the hardware and the ground support equipment we unpacked glory moved it to the its temporary home and began the process of configuring for launch over the next couple weeks we spent time visually inspecting the instruments the spacecraft the solar arrays we put the observatory through a full battery of electrical tests and then we were ready
to fuel the fueling of the spacecraft

marked a major milestone for me personally as it represented Glory's

last standalone activity by itself from that point on the program going forward

we were going to meet up with the Taurus and we'd work together to get us to the launch and I must say that the glory processing has gone and glory and the spacecraft and the launch vehicle processing has gone very well as John mentioned in his presentation Gloria's buckled atop the Taurus right now and we're ready for its ride to get to space
once we separate from the launch vehicle

the spacecraft will start a planned

series of events that will ultimately

result in solar array deployment depending

upon the insertion orbits initial conditions on solar array deployment is

expected about 21 minutes after the

separation event all the way out to

about an hour and 15 minutes after the

event will be using NASA's tracking and

data relay satellite to monitor Space

Act spacecraft activities for about 12

hours after we launch but we will be

commanding the spacecraft through our
ground station contacts during this

first several ground station contacts

we're going to be performing some key

operations for the spacecraft where we

will verify its state of health we're

going to open up a propulsion system

latch valve we have to take the minus X

solar array rotated 180 degrees towards

the Sun and then we'll adjust the beta

angle offset of those arrays to maximize

our electrical power over the next

several days after that we will be

bringing on other spacecraft systems and

in about seven days after the launch the
spacecraft should be completely
del after that we're going to move into

the next 20 days which are very critical
days in that we will perform a series of
propulsion maneuvers to raise our
altitude and enter into the afternoon

constellation that will put us at about
twenty nine days after after we launched

and then we will spend the next days all
the way out to 42 the 45th day

commissioning the instruments and once

that's complete glory will be configured

fully for science operations and then my
job will be complete before we move on
to hear the weather briefing which is
very important for tomorrow night I want
to just tell you once again how excited
and pleased my team is to be at this
point in the program we've worked very
hard to get look glory configured for
launch and I want to ensure you that
glory is ready to go to work and that's
it thank you Brian and now for the
weather forecast first lieutenant
Benjamin jail our they launch weather
officer for tomorrow night's launched
from the 30th weather squadron here at
Vandenberg Air Force Base tenant water
thank you George good afternoon ladies
and gentlemen february is the most atmospherically dynamic month for the central California coast marked by alternating patterns of high and low pressure systems moving through the area this past week we saw a rather intense low pressure system moved through Vandenberg which produced heavy rainfall thunderstorms and strong winds the pattern remains unsettled as a cut-off low will dive down from the Pacific coast from the Gulf of Alaska and linger off the California coast cut off flows
develop as low pressure systems loosen

lose upper level jet support they are

literally cut off from the flow and can

remain stationary for several days at a

time this is our main forecast challenge

because the nature flow makes them

difficult for weather models to predict

their timing and their movement

currently skies are generally clear over

Vandenberg as the majority of the clouds

associate associated with cut off flow

are to the northwest off the North

Northern California coast

the low is forecast to remain to the


west of Vandenberg Air Force Base and

move to the south of central California

through today and tomorrow the main

concern we have at this time is that the

proximity of the cut off flow could

produce cumulus clouds overhead of the

launch pad or a vehicle flight path this

would violate a range safety launch

commitment criterion for cumulus clouds

that being said the models and

observations are beginning to agree that

the weather conditions for the launch

window will remain favorable the

forecast for the launch window of 208 to

211 local on februari 23rd will be
cumulus clouds of one-eighth coverage
from 3000 and 5000 feet cirrus clouds three eighths coverage from 22 to 25,000 feet on restricted visibility with winds out of the southeast at 12 to 18 knots temperatures will be in the mid to low 40s with an overall probability of viola play 20 of ten percent for those cumulus clouds and finally the 24-hour scrub forecast for february2014 improvement in conditions as the cut-off low moves out of the area and high pressure begins to take hold we're still going to see some of those high-level cirrus clouds linger
around from 22 to 25,000 feet visit

visibility will remain on winds will

switch from the Northwest at 12 to 18

knots and temperatures will be in the

mid 40s that gives us a probability of

violation for our 24-hour scrub forecast

of 0% and that's all I have George back

to you all right Thank You lieutenant

will our and now we'll take questions

we'll start first here at vandenberg

then we'll go to the Kennedy Space

Center what we understand there are some

questions and then come back here for

any final questions so we'll start here
at Vandenberg here with nor walls please

give your name and affiliation with Mike

Copps team hi Nora Wallace Santa Barbara

news-press I'm John you spoke a little

bit about looking at the vehicle from I

think you said stem to stern and he said

we fixed all that we could could you

elaborate a little bit on that and tell

us you know me

what else might have been found on the

rocket and kind of the new improved

Doris sure sure right well obviously the

the fairing was the focus and and we we

put more energy into that because it did

613 00:26:38,769 --> 00:26:44,410
we were able to identify the cause

00:26:41,250 --> 00:26:46,960
probably within six to eight months it's

00:26:44,410 --> 00:26:49,660
sort of this discovery sort of comes out

00:26:46,960 --> 00:26:51,990
over time and then we started in on the

00:26:49,660 --> 00:27:01,719
we held what we call them an independent

00:26:51,990 --> 00:27:04,150
review where we have engineering staff

00:26:55,119 --> 00:27:01,719
we held what we call them an independent

00:27:01,720 --> 00:27:05,829
from both Kennedy and orbital that

00:27:04,150 --> 00:27:11,038
aren't associated necessarily with

00:27:05,829 --> 00:27:13,750
Taurus look at both the design aspect

00:27:11,038 --> 00:27:15,460
all the processes that we go through to

00:27:13,750 --> 00:27:19,440
make sure that that for example our

00:27:15,460 --> 00:27:22,808
analysis for pick an example structure

00:27:19,440 --> 00:27:25,330
strength say that had nothing to do with
the fairing deployment that that
analysis was performed correctly that the electrical systems were done the guidance navigation and control systems all of the assumptions were correct in the models I mean it just it's an excruciating process but we left no stone unturned we did make some modest hardware improvements we changed for example to a later ordinance devices okay you can't test them because then then they're done so we moved to sue to some newer lots that had a better test history for example that again didn't
have anything to do with the fairing

deployment but nonetheless will will improve the overall reliability of the
vehicle so those are some of the things

that we did Janine

excuse me Janine Scully santa maria

times lompoc record home are from NASA

standpoint what's your level of confidence and tourists going forward

Wednesday sure you know it's it's kind of like there's that cold pool and you got to dip your toe in it we've done

everything we can we've looked at that

vehicle from a systems level down to the
piece parts level there's we've checked
everything where as comfortable as we're going to get we really need to get this
launch and to be successful and I think the whole team has done some
soul-searching and look deep at everything we've done I don't think we

can uncover anything else and with that that gives me a lot of comfort yeah I
will be crossing my fingers but that's just my super superstitious side but we

have done everything quickly good all
right we're going to go to Kennedy and
take a question or two from there and
then we'll come back and take some

follow-up and additional questions here

at Vandenberg so what we could go to

Kennedy for the questions calm with the

question for joy Brett oh just wondering

what the cost of the glory mission is

and how if at all the glory mission and

its features affected by the proposed

fy12 budget um starting off with the

question of cost the glory mission costs

about 420 4.1 million dollars and that's

the cost of the mission including me on

orbit operations the second part of that

question could you repeat that because I

could barely hear you yes sorry I'm just
how the glory mission feature if it all

is going to be affected by the proposed

fy12 budget the best of my knowledge

right now the glory budget I mean

there's been a commitment to support the

glowing mission and as far as I know

we are confident that that is unaffected

at this point in time again this one of

the most important initiatives in the

earth science portfolio right now and

unless that changes in the future course

we don't know what the future holds but

right now the commitment is firm it's

there and we will be going forward to
support the mission further questions at
Kennedy all right that's all from
Kennedy so we'll come back here we have any questions in the back from anyone back here all right then we'll come back here to the front door you can pick up the gale wallace can Santa Barbara news-press joy you can answer this one in terms of understanding global climate change can you rank glorious importance in the a train to give us a better understanding of how important it is to have that particular spacecraft in the constellation well right now I'm going
to say that you could hold your question

for the next science briefing where

you'll get the real experts for the

science however I will say that glory in

combination with observations from the

other spacecraft that are currently on

orbit with the a train will provide a

substantial amount of insight and

clarity as I had spoken before about how

aerosols impact our Earth's atmosphere

and it'll also go into looking at

how the atmosphere the aerosols in the

atmosphere in combination with the

changes in the solar energy will impact

Earth's climate so I'd recommending

00:32:09,269 --> 00:32:13,710
joliot for the true experts on the panel

00:32:11,460 --> 00:32:16,170
a little later but it's very important I

00:32:13,710 --> 00:32:17,970
mean obviously global warming we've

00:32:16,170 --> 00:32:20,100
heard a lot about global climate changes

00:32:17,970 --> 00:32:21,690
I mean this is our planet our earth I

00:32:20,099 --> 00:32:23,309
mean you really need to bring it down to

00:32:21,690 --> 00:32:25,590
brass tacks all you have to do is step

00:32:23,309 --> 00:32:28,649
outside and you either have a hazy day

00:32:25,589 --> 00:32:30,389
or you have a clear and sunny day we're

00:32:28,650 --> 00:32:32,640
looking at supporting the planet for

00:32:30,390 --> 00:32:35,160
future generations and we really need to

00:32:32,640 --> 00:32:36,990
get serious as a civilization about

00:32:35,160 --> 00:32:40,950
truly getting the data that we need to

00:32:36,990 --> 00:32:44,329
understand how in fact we as a community
are impacting our own backyard

the air that we breathe so you're

welcome Ginny do you have a follow-up

how many days on the range do you have

then are there any impediments in terms

down satellite charging beyond 24-48 hours

slope we have the 23rd and the 24th is a

back up there is some other testing on

the range but we'll take if we need to

negotiate that it's normal process