1
00:00:02,509 --> 00:00:08,219
Houston I'm ready for the event hey

2
00:00:05,549 --> 00:00:10,109
sounds good Andre ISA this is Mission

3
00:00:08,220 --> 00:00:15,660
Control Houston please call station for

4
00:00:10,109 --> 00:00:18,948
a voice check station this is your news

5
00:00:15,660 --> 00:00:18,949
how do you hear me this

6
00:00:20,320 --> 00:00:28,359
your news this is International Space

7
00:00:22,929 --> 00:00:31,750
Station hear you loud and clear very

8
00:00:28,359 --> 00:00:34,539
much Andre as you know we will be doing

9
00:00:31,750 --> 00:00:37,149
this interview in two parts the second

10
00:00:34,539 --> 00:00:39,909
part is a series of scientific questions

11
00:00:37,149 --> 00:00:42,909
after the first set of questions i will

12
00:00:39,909 --> 00:00:45,488
say thank you and goodbye and we'll pass

13
00:00:42,909 --> 00:00:47,619
directly into the second questions okay

14
00:00:45,488 --> 00:00:49,149
so don't be surprised if you hear me say
thank you and goodbye okay we're going
to go in just a couple of seconds copy
copy copy
okay Andre here we go here we go here we
go station has been continually occupied
for nearly 12 years now on Europe has
had a big role in that adventure joining
us now more than 330 kilometers above
the earth is European crew member andre
kuipers and ray thanks for being with us
you'll be leaving the ISS soon how are
you feeling about going home i imagine
there's a real mix of emotions real mix
of emotions yes that's correct of course
I like to come home to see the children and the family and smell the fresh air and hear some birds for example but it's also my home here I've been living here for half a year I have fantastic views the floating is great so it's a double feeling also because yeah I know that I won't be coming back here probably so it's mixed feelings indeed is there a feeling of mission accomplished among those emotions because you had some very specific scientific goals to achieve what were they
yes I would say that this mission

00:02:33,000 --> 00:02:37,830
accomplished I've been training a very

00:02:35,340 --> 00:02:40,620
long time for this and looking forward

00:02:37,830 --> 00:02:44,310
to do all the experiments I trained a

00:02:40,620 --> 00:02:47,009
lot for example at ISAS for the Columbus

00:02:44,310 --> 00:02:49,560
module the European lab and I've been

00:02:47,009 --> 00:02:51,870
working with every single wreck in that

00:02:49,560 --> 00:02:54,060
lab and that was very very good feeling

00:02:51,870 --> 00:02:57,990
so that all the training must put it

00:02:54,060 --> 00:03:05,009
into use so that sends absolutely

00:02:57,990 --> 00:03:07,200
mission accomplished apart from the

00:03:05,009 --> 00:03:09,269
scientific work how do you put in your

00:03:07,199 --> 00:03:12,139
time talk us through a typical day on

00:03:09,270 --> 00:03:12,140
board the ISS

00:03:14,530 --> 00:03:21,800
yeah well we have the working day which
starts with a daily planning conference

so we talked to today then we start our

experiments or maintenance work or

repairs so that means we spread out out

for the station and some people might be

working in a Japanese module other in

the u.s. lab or the Russian segment so

we start at asked did we do this

together with with the ground of course

we talked with reduced we talked with

Huntsville we talked with scuba and

Japan with munich european flight

control center and so and of course

sometimes with with soup in moscow so
72 00:03:56,689 --> 00:04:01,849
with all these people together we do the

73 00:03:59,389 --> 00:04:04,519
task set for that day and on top of that

74 00:04:01,849 --> 00:04:06,049
we have to stay in condition so in a

75 00:04:04,520 --> 00:04:09,050
good physical condition that means that

76 00:04:06,050 --> 00:04:11,480
every day we do a lot of sports so of

77 00:04:09,050 --> 00:04:13,459
course like everybody else we have to

78 00:04:11,479 --> 00:04:17,120
eat so we have we have our meals in

79 00:04:13,459 --> 00:04:18,918
between and and at the end of the day we

80 00:04:17,120 --> 00:04:22,090
finish the day again with the planning

81 00:04:18,918 --> 00:04:25,789
conference to talk through the day

82 00:04:22,089 --> 00:04:27,859
fixing open ends and start the planning

83 00:04:25,790 --> 00:04:31,000
for for the next day and then we have

84 00:04:27,860 --> 00:04:34,129
some free time to do our things like

85 00:04:31,000 --> 00:04:36,139
calling home for example watching a
movie of course watching out of the

well it seems a fascinating unimaginable

existence of fascinating unimaginable

tell us about those if you would not do

it if you would I think you have to

repeat the question because I hear three

air goes here at the moment so I didn't

get the question

okay it seems a fascinating unimaginable

existence very few people get to

experience it but there must be loes as

well as highs tell us about those if you

would yes that's true I mean it's
fantastic to float for example that's a

very nice feeling but it also means that you that everything else else float so

if you're working with certain experiments you might easily lose things because normally things drop down but in space it can float everywhere so if you have an object like this this is a big object a torch but if I don't watch it for a while even this one I might not find Becky easily because it goes somewhere that I don't look

it's all three dimensional so that is that is an issue that we have we have we have to be very careful with all the
items we work on what is another yeah

other aspects is that we living in a glass house so everything we do is watched on the ground and so we always concept of course very concentrated but that this is a certain aspect that there's always people looking over your shoulder helping you but you're always you're always yeah in a glass house and in that sense it's nice also that we have of course our free time our private quarters so we compensate for that 12 this was your second mission your first was in 2004 you how have things
changed on the ISS since then and will

it be your last mission you even the

kids it may be your last mission

yes 2004 that was my first flight was a short flight of 11 days and the station it's a huge station now and we are also with six people on board and we have some features that I didn't have before like the cupola which you can see the earth 360 degrees so that's a very nice feature and it will probably be my last flight if you see I would ask me to fly again I would absolutely do that
because it's very interesting and very beautiful but there are new astronauts and I guess that when it's my turn again I will already be retired but you never know

well Andre we wish you a safe journey

home thanks for taking the time to talk
to it goodbye what's a pleasure

can you give us a few examples of how the science you did during your mission can have a benefit to us on earth yeah

one of the nice things of being an astronaut is take you do science in a lot of different fields so it could be
that one morning I do for sample biology

00:08:44,399 --> 00:08:49,139
experiment working with with cells we

00:08:47,159 --> 00:08:50,579
have special device when I worked on

00:08:49,139 --> 00:08:53,100
called the cubic immediate the next

00:08:50,580 --> 00:08:56,340
experiment called throw out and and and

00:08:53,100 --> 00:08:58,800
I worked on it on immune system so this

00:08:56,340 --> 00:09:01,470
kind of results can be used on ground to

00:08:58,799 --> 00:09:04,799
to get more knowledge and applications

00:09:01,470 --> 00:09:07,139
for example to to your problems with

00:09:04,799 --> 00:09:09,149
with the human immune system because we

00:09:07,139 --> 00:09:12,149
have a different situation here in space

00:09:09,149 --> 00:09:16,139
bacteria grow better and the human

00:09:12,149 --> 00:09:18,389
immune system is a bit decreased then in

00:09:16,139 --> 00:09:22,019
the afternoon I might be doing a

00:09:18,389 --> 00:09:23,909
technology experiment or fluid physics
experiment so we have all kind of

different ones that and the applications

of those experiments can be found in

industrial processes for example or new

materials or new treatment for for

osteoporosis we have an experiment

called a dose which looks at the the

bone loss that astronauts have much

faster than people on earth and this is

important because a big part of the

population is getting any old old age

really reaching with all the problems

for bone loss so the research that we do

up here is done by teams on the ground
to do the research there and here they have a specific I can do specific research because of the fact that we don't have wait here so those aspects are being tested here and have their applications on the ground

a lot of the science is about the human body are you then the guinea pig for these experiments yes absolutely for a lot of experiments we work with with bailouts but for human experiments human physiology experiments we are the pale out so we got the guinea pigs that means that we have we have ECG EEG blood
pressure measurements we gave blood

samples we do ultrasound scans of organs

and blood vessels and even of our eyes

so we are indeed the guinea pigs and we

we are operated subject so one day I do

an ultrasound scan on a colleague and

the next day he does it on me or we take

blood samples so yes we we are guinea pigs

pigs

the promised mission happens during a

period of high solar radiation did you

have any way of monitoring this yes

absolutely we have a very interesting

experiments running human called altea

but also a dose is 3d and to be

215
00:11:34,720 --> 00:11:39,670
measuring all out for the space station

216
00:11:36,490 --> 00:11:41,799
we measuring the radiation levels so

217
00:11:39,669 --> 00:11:43,799
radiation is an interesting topic we are

218
00:11:41,799 --> 00:11:46,809
not protected by the atmosphere here and

219
00:11:43,799 --> 00:11:50,439
without even equipment we can see

220
00:11:46,809 --> 00:11:52,419
clearly that was an active son well

221
00:11:50,440 --> 00:11:54,370
first of all sometimes you see flashes

222
00:11:52,419 --> 00:11:57,129
and it means it's that radioactive

223
00:11:54,370 --> 00:11:58,959
particles hit the back of your eye your

224
00:11:57,129 --> 00:12:02,948
retina and you see that that's a flesh

225
00:11:58,958 --> 00:12:05,439
so that is something we we can see but

226
00:12:02,948 --> 00:12:07,569
we also saw fantastic phenomenon and

227
00:12:05,440 --> 00:12:10,180
that is the the northern and southern

228
00:12:07,570 --> 00:12:12,850
lights but then from space and it was
very active during this flight so it was

a beautiful thing see but that is

something caused by radiation from the Sun so we measure it with all kinds of equipment and we can even see it with our own eyes

and finally Andre a question for one of our science programs can you give us an example of an experiment which couldn't which could not be done here on earth

well actually that's the last question

that there's an experiment with the earth in that sense so there we have an experiment called geo flow and geo flow
is mimicking the whole earth so the
earth in a box that we have to
experiment with with fluids and it's a
sphere and then a fluid mantle and then
again a sphere around it so this is me
making the situation of the earth with
with the core with the mantle and it
gives us information on how for example
earthquakes are costs and and what the
physics are what's what's happening
inside inside the earth and that we
simulate with this experiment in the
fluid science lab if you have in the
Columbus lab from Asia and it's very
intriguing experiment geo flow

okay Andre can you tell us something about vessel IED besides all the biological fluid physics human physiology experiments we also have technology experience so we we we testing out new technologies and one of those experiments is the vessel ID so these are it's a system that tracks ships all over the world which is a very interesting way to for the shipping industry to to know where all the ships are and this is a technology that is tested here from the space station so
also in that field we do a lot of

innovative new things

satellites have changed the way we can experience big events like the Olympics

do you have any standard memories of watching a particular event that was possible because of satellites

can you repeat the question became a bit true bit broken

this is a question for one of our science programs satellites have changed the way we experience big events like

the olympics and i'm just wondering from your own memory do you have any standard memories of watching a particular event
that was possible because of satellites

as well I mean you mean

telemcommunications events or I mean

satellites give us a lot of interesting

possibilities I think big big change for

example is the GPS that everybody has

now so that is a important recent

development and concerning events yeah

things that happen around the worlds are

we get very quickly on our television

screen said so these are if you want to

talk about events these are things that

we quickly get through through

satellites but I don't know if that is
really the question like you had

Andre stand by for one final question

Chris I couldn't hear you

okay Andre final final question why do

they take the blood samples and ECGs one

of the things that happens in space

beside the bonus talked about is muscle

loss I float here I don't use much of my

muscles and that means that you get

weaker coordination is less but not only

from the muscles of your arms and legs

but also your heart muscle so and one of

the experiments we're doing is checking

what the heart muscle is is doing so we
have an experiment called vo2 max for

example and a part of the experiment is

also a term or lap so what you see often

is that scientists combine experiments

so one scientist is looking what the

maximum oxygen uptake is how the hearts

behaving and for that we have the ECG

for on for example but another

experiment from another country in this

case Denmark they have a experiment with

with port for measuring the heat

dissipation on all the hat and on the

chest and that's also very interested to

see how that happens in in microgravity
we use an interesting equipment for those

kind of experiments we have the portable

pulmonary function system which is a European device that we have in the u.s.

lab and with that one we go on a bike

and we do maximum exercise for the field
to wax and at the same time measure also

the temperature gradient so these are very very integrated experiments that we're doing here from different scientists with the goal of getting better knowledge of how our body works

our heart works and the maybe we have some good applications of that for for patients on earth
okay Andre we have yet another question

for you can you give us a one minute

summary of cubic biology one of the

biological experiments I did is a robot experiment we did this with a device
called cubic I used it also on my my first flight cubic is very interesting

small payload that we can put in a record called in the edr Acura paean to

Iraq so we have one cubic in that wreck and we have another one which is a stand alone and in there we have an incubator

alone and in there we have an incubator

we can we have a centrifuge so we can compare the situation when with samples
that are under earth conditions gravity

wise but for example radiation wise they

are in space conditions so with this way

or this way we have a little mini lap on

board for biological samples and bizarre

all the experiment for example as

looking at the immune system that we

have but we can have all kinds of

different biological samples in this

cubic very nice device

well Andre it's been a fascinating and

in some great thank you very much for

taking time to talk to it that's a

pleasure a station this is Houston ACR
that concludes the event thank you

and thank you and and euro news station

we're resuming operational video and

audio com and Andre you've got a

activity to shut down the t2 will need

you to wait on that until we've got the

wireless back up after the crystal

so we'll give you a call when

we're ready for that how copy