



SPACE TO GROUND

1
00:00:00,780 --> 00:00:02,520
"HOUSTON, STATION ON SPACE TO GROUND"

2
00:00:03,500 --> 00:00:05,560
ANOTHER
LAUNCH FROM BAIKONUR!

3
00:00:06,880 --> 00:00:09,180
WELCOME TO SPACE TO
GROUND, I'M DAN HUOT.

4
00:00:09,500 --> 00:00:12,920
THERE WAS A SUMMERTIME DELIVERY
TO THE SPACE STATION THIS WEEK.

5
00:00:13,640 --> 00:00:17,440
THE RUSSIAN PROGRESS 67 CARGO
CRAFT LAUNCHED ON A SUNNY DAY

6
00:00:17,440 --> 00:00:19,640
FROM KAZAKHSTAN ON WEDNESDAY.

7
00:00:19,980 --> 00:00:23,940
RIDING ATOP A SOYUZ ROCKET,
THE SHIP THE FLIGHT INTO SPACE

8
00:00:23,940 --> 00:00:25,880
AND ON TO THE ORBITING
LABORATORY.

9
00:00:26,366 --> 00:00:28,986
AFTER TWO DAYS, PROGRESS
DOCKED TO THE BACK END

10
00:00:28,986 --> 00:00:32,320
OF THE ZVEZDA SERVICE
MODULE EARLY FRIDAY MORNING,

11
00:00:32,320 --> 00:00:34,640

DELIVERING MORE THAN
THREE TONS OF FOOD,

12

00:00:34,640 --> 00:00:38,080

FUEL AND SUPPLIES
FOR EXPEDITION 52.

13

00:00:38,660 --> 00:00:41,416

A NEWLY INSTALLED EXPERIMENT
IS GOING TO BE LOOKING AT SOME

14

00:00:41,420 --> 00:00:44,380

OF THE MOST EXTREME
STARS IN THE GALAXY.

15

00:00:45,900 --> 00:00:50,040

THE NEUTRON STAR INTERIOR
COMPOSITION EXPLORER, OR NICER,

16

00:00:50,040 --> 00:00:52,796

WAS PULLED OUT OF THE TRUNK
OF THE DRAGON CARGO CRAFT

17

00:00:52,796 --> 00:00:54,626

AND INSTALLED ON THE
STATION THIS WEEK

18

00:00:54,626 --> 00:00:56,960

BY ROBOTICS CONTROLLERS
ON THE GROUND.

19

00:00:57,800 --> 00:01:00,560

IT WILL TRAIN ITS
INSTRUMENTS ON NEUTRON STARS,

20

00:01:00,560 --> 00:01:04,076

REMNANTS OF MASSIVE STARS
THAT, AFTER USING UP ALL

21

00:01:04,076 --> 00:01:08,106

OF THEIR FUEL, HAVE COLLAPSED
INTO INSANELY DENSE SPHERES

22

00:01:08,106 --> 00:01:09,906
ABOUT THE SIZE OF NEW YORK CITY.

23

00:01:10,320 --> 00:01:13,260
THERE IS SO MUCH STUFF
PACKED INTO THESE STARS

24

00:01:13,260 --> 00:01:15,660
THAT JUST ONE TEASPOONFUL
OF MATTER

25

00:01:15,660 --> 00:01:18,860
FROM THEM WOULD WEIGH A
BILLION TONS ON EARTH.

26

00:01:19,820 --> 00:01:22,140
SOME OF THESE NEUTRON
STARS APPEAR TO PULSE

27

00:01:22,140 --> 00:01:23,696
AS THEY EMIT HUGE BEAMS

28

00:01:23,700 --> 00:01:26,460
OF ELECTROMAGNETIC
RADIATION WHILE SPINNING,

29

00:01:26,600 --> 00:01:28,580
WHICH IS WHY WE CALL
THEM PULSARS.

30

00:01:29,440 --> 00:01:32,380
SCIENTISTS ARE GOING TO USE
NICER TO TEST USING PULSARS

31

00:01:32,380 --> 00:01:36,516
AS A SORT OF GALACTIC GPS, THE
FIRST TIME WE'LL DEMONSTRATE

32

00:01:36,520 --> 00:01:40,160

IF WE CAN USE THESE EXTREME
BEACONS FOR FUTURE NAVIGATION

33

00:01:40,160 --> 00:01:42,100

OF THE DEEPEST PARTS OF SPACE.

34

00:01:42,960 --> 00:01:45,900

THIS WEEK'S TWITTER QUESTION
COMES FROM GB WHO WANTED

35

00:01:45,900 --> 00:01:49,140

TO KNOW HOW MUCH RADIATION
AN ASTRONAUT GETS ON STATION

36

00:01:49,140 --> 00:01:50,760

OR A MISSION TO THE MOON.

37

00:01:51,360 --> 00:01:53,360

WELL IT'S NOT AN EXACT
FIGURE SINCE THERE ARE

38

00:01:53,360 --> 00:01:55,780

SO MANY VARIABLES,
BUT WE DO OUR BEST

39

00:01:55,780 --> 00:01:57,660

TO MAKE IT AS SMALL AS POSSIBLE.

40

00:01:58,480 --> 00:02:01,400

ASTRONAUTS ON THE STATION
DO RECEIVE HIGHER DOSES

41

00:02:01,400 --> 00:02:03,580

OF RADIATION THAN US ON
EARTH BUT ARE PROTECTED

42

00:02:03,580 --> 00:02:06,320

FROM THE MOST HARMFUL STUFF
SINCE THEY'RE STILL WELL

43

00:02:06,320 --> 00:02:08,540
WITHIN EARTH'S MAGNETIC SPHERE.

44

00:02:09,260 --> 00:02:12,560
SOLAR EVENTS AND AREAS LIKE
THE SOUTH ATLANTIC ANOMALY CAN

45

00:02:12,560 --> 00:02:15,980
INCREASE THEIR EXPOSURE, WHICH
IS CAREFULLY TRACKED BY A NUMBER

46

00:02:15,980 --> 00:02:19,036
OF RADIATION MONITORS THROUGHOUT
THE STATION AND CARRIED

47

00:02:19,036 --> 00:02:20,856
BY THE ASTRONAUTS THEMSELVES.

48

00:02:20,900 --> 00:02:24,380
MISSIONS TO THE MOON AND MARS
CARRY BIGGER RADIATION CONCERNS,

49

00:02:24,380 --> 00:02:26,420
AS THEY CROSS INTO OPEN SPACE

50

00:02:26,420 --> 00:02:30,396
WHERE GALACTIC COSMIC RAYS CAN
STRIKE OR WILL BE ON SURFACES

51

00:02:30,396 --> 00:02:31,976
THAT DON'T HAVE THE PROTECTION

52

00:02:31,980 --> 00:02:34,180
OF A STRONG MAGNETIC
FIELD LIKE EARTH.

53

00:02:34,500 --> 00:02:35,806
THAT'S WHERE NEW SHIELDING

54

00:02:35,806 --> 00:02:38,720
AND OTHER COUNTERMEASURES
WILL BE EXTRA IMPORTANT.

55

00:02:39,560 --> 00:02:41,696
KEEP SENDING YOUR
QUESTIONS USING THE HASHTAG