1
00:00:38,399 --> 00:01:13,750
uh

2
00:01:21,510 --> 00:01:15,670
and good morning columbia as you're

3
00:01:25,030 --> 00:01:23,190
good morning bill that song sounded

4
00:01:30,149 --> 00:01:25,040
vaguely familiar to me

5
00:01:34,950 --> 00:01:31,990
well we're ready for another exciting

6
00:01:36,149 --> 00:01:34,960
day uh here in the space business

7
00:01:42,149 --> 00:01:36,159
for right now though we're going to

8
00:01:46,230 --> 00:01:43,749
this is mission control houston this

9
00:01:48,630 --> 00:01:46,240
morning's wake up call

10
00:01:51,910 --> 00:01:48,640
the air force song by the united states

11
00:01:54,310 --> 00:01:51,920
air force academy cadet chorus

12
00:01:56,389 --> 00:01:54,320
that for pilot steve lindsay who is a

13
00:01:58,230 --> 00:01:56,399

major in the air force and

14
00:02:02,709 --> 00:01:58,240
commander kevin kriegel formerly of the

15
00:02:07,270 --> 00:02:05,429
this is usmp4 science operations control

16
00:02:08,949 --> 00:02:07,280
huntsville science activities aboard the

17
00:02:11,430 --> 00:02:08,959
space shuttle columbia continue to go

18
00:02:13,110 --> 00:02:11,440
well this afternoon a new growth cycle

19
00:02:15,110 --> 00:02:13,120
is underway with the isothermal

20
00:02:17,670 --> 00:02:15,120
dendritic growth experiment

21
00:02:20,150 --> 00:02:17,680
the study is designed to improve metals

22
00:02:22,710 --> 00:02:20,160
used in automobiles and jet engines

23
00:02:24,869 --> 00:02:22,720
in the experiment materials are melted

24
00:02:27,110 --> 00:02:24,879
and re-solidified to observe the growth

25
00:02:29,030 --> 00:02:27,120
of dendrites you're looking now at live

26
00:02:32,390 --> 00:02:29,040
video downlinked from the shuttle

27
00:02:33,990 --> 00:02:32,400
columbia of the idge experiment as the

28
00:02:36,949 --> 00:02:34,000
dendrite grows in space in the

29
00:02:39,509 --> 00:02:36,959
microgravity environment idg's lead

30
00:02:41,750 --> 00:02:39,519
scientist professor matthew koss of

31
00:02:44,150 --> 00:02:41,760
rensselaer polytechnic institute in troy

32
00:02:46,390 --> 00:02:44,160
new york says the science team is

33
00:02:48,630 --> 00:02:46,400
repeatedly performing growth cycles at

34
00:02:51,110 --> 00:02:48,640
the same super cooling this allows

35
00:02:55,589 --> 00:02:51,120
researchers to obtain the best science

36
00:02:57,509 --> 00:02:55,599
data set possible for later analysis

37
00:03:00,229 --> 00:02:57,519
and the growth cycles continuing with

38
00:03:02,710 --> 00:03:00,239

the idge experiment on board the space

39
00:03:05,509 --> 00:03:02,720
shuttle columbia

40
00:03:07,750 --> 00:03:05,519
also today uh very uh

41
00:03:10,550 --> 00:03:07,760
good reports from the science teams both

42
00:03:12,149 --> 00:03:10,560
with mephisto and another furnace on

43
00:03:14,149 --> 00:03:12,159
board columbia

44
00:03:27,030 --> 00:03:14,159
the advanced automated directional

45
00:03:30,710 --> 00:03:29,190
these views showing some of the payloads

46
00:03:32,550 --> 00:03:30,720
in the cargo bay

47
00:03:34,550 --> 00:03:32,560
these payloads many of them have been

48
00:03:36,630 --> 00:03:34,560
operating throughout the mission

49
00:03:39,030 --> 00:03:36,640
mounted in canisters in columbia's

50
00:03:41,270 --> 00:03:39,040
payload bay

51
00:03:43,190 --> 00:03:41,280
they include

52
00:03:45,270 --> 00:03:43,200
various technology experiments so

53
00:03:48,390 --> 00:03:45,280
studying uh new technologies that can be

54
00:03:51,589 --> 00:03:48,400
used on future spacecraft

55
00:03:53,670 --> 00:03:51,599
among those are a study of a heat pipe

56
00:03:55,110 --> 00:03:53,680
technology that can be used for cooling

57
00:03:57,190 --> 00:03:55,120
a passive cooling system that would

58
00:03:59,350 --> 00:03:57,200
include no moving parts

59
00:04:02,390 --> 00:03:59,360
being studied for possible use on future

60
00:04:06,470 --> 00:04:04,710
that experiment is called the loop heat

61
00:04:08,710 --> 00:04:06,480
pipe experiment it's sponsored by the

62
00:04:16,069 --> 00:04:08,720
center for space power at texas a m

63
00:04:22,390 --> 00:04:20,469

also another experiment in the cargo bay

64
00:04:24,629 --> 00:04:22,400
along with the heat pipe experiment is

65
00:04:26,950 --> 00:04:24,639
uh called the

66
00:04:28,390 --> 00:04:26,960
sodium sulfur battery experiment looking

67
00:04:32,950 --> 00:04:28,400
at

68
00:04:36,150 --> 00:04:32,960
in weightlessness a possible source of

69
00:04:37,670 --> 00:04:36,160
battery power for future spacecraft

70
00:04:39,110 --> 00:04:37,680
other experiments in the cargo bay that

71
00:04:41,030 --> 00:04:39,120
have been operating throughout

72
00:04:46,950 --> 00:04:41,040
columbia's mission include the turbulent

73
00:04:46,960 --> 00:04:49,830
that experiment

74
00:04:54,070 --> 00:04:51,670
seeks to understand the characteristics

75
00:05:02,070 --> 00:04:56,390
turbulent gas jet diffusion flames and

76
00:05:05,990 --> 00:05:03,990
training session underway as we see

77
00:05:07,590 --> 00:05:06,000
jerry ross here is to evaluate the

78
00:05:08,870 --> 00:05:07,600
handling characteristics of the

79
00:05:11,029 --> 00:05:08,880
satellite

80
00:05:13,110 --> 00:05:11,039
he and his colleague jim newman have

81
00:05:15,110 --> 00:05:13,120
been passing the uh

82
00:05:17,990 --> 00:05:15,120
the mock-up of the spartan

83
00:05:20,550 --> 00:05:18,000
back and forth to

84
00:05:23,510 --> 00:05:20,560
understand and get a good feel for its

85
00:05:25,510 --> 00:05:23,520
handling characteristics

86
00:05:28,230 --> 00:05:25,520
the spartan actually

87
00:05:31,590 --> 00:05:28,240
weighs in at about 1200 pounds of course

88
00:05:33,830 --> 00:05:31,600

in space with microgravity uh it really

89
00:05:36,310 --> 00:05:33,840
has no weight but its mass is still

90
00:05:37,909 --> 00:05:36,320
there so it is

91
00:05:40,790 --> 00:05:37,919
the prudent thing to do to understand

92
00:05:41,830 --> 00:05:40,800
the the handling characteristics of the

93
00:05:44,310 --> 00:05:41,840
uh

94
00:05:45,670 --> 00:05:44,320
spartan satellite

95
00:05:48,310 --> 00:05:45,680
so they'll continue this training

96
00:05:50,469 --> 00:05:48,320
session for another a couple of hours in

97
00:05:52,390 --> 00:05:50,479
the uh water tank

98
00:05:54,070 --> 00:05:52,400
which is uh

99
00:05:59,990 --> 00:05:54,080
near the johnson space center here in

100
00:06:05,670 --> 00:06:03,189
and this wider view

101
00:06:07,350 --> 00:06:05,680
gives a better idea of the size of the

102
00:06:08,550 --> 00:06:07,360
satellite in relation to the two

103
00:06:10,710 --> 00:06:08,560
astronauts

104
00:06:11,590 --> 00:06:10,720
and again in this view jerry ross is on

105
00:06:19,029 --> 00:06:11,600
the

106
00:06:21,270 --> 00:06:19,039
hoses which obviously are not used in

107
00:06:24,469 --> 00:06:21,280
space but underwater they are and

108
00:07:29,029 --> 00:06:24,479
jerry ross's is red and jim newman's is

109
00:07:29,039 --> 00:08:38,389
oh

110
00:08:38,399 --> 00:09:20,310
is