



1
00:00:06,530 --> 00:00:03,919
nASA has added two years to the Cassini

2
00:00:09,470 --> 00:00:06,540
mission to Saturn where to go what to

3
00:00:11,690 --> 00:00:09,480
see to prepare for this extended journey

4
00:00:13,970 --> 00:00:11,700
engineers had to chart some tricky

5
00:00:19,429 --> 00:00:13,980
maneuvers trying to fulfill the wish

6
00:00:21,200 --> 00:00:19,439
lists of 200 scientists the spacecraft's

7
00:00:22,640 --> 00:00:21,210
going you have a locomotive speeding

8
00:00:24,349 --> 00:00:22,650
down the track they haven't built the

9
00:00:27,109 --> 00:00:24,359
railway yet and we're up front laying

10
00:00:28,970 --> 00:00:27,119
track it's a lot like if you're in

11
00:00:30,320 --> 00:00:28,980
triple-a and you go to the trip you go

12
00:00:32,330 --> 00:00:30,330
get a trip tik on the counter someone

13
00:00:33,709 --> 00:00:32,340

sits there with a map and draws out with

14

00:00:35,870 --> 00:00:33,719

a highlighter where you're going and

15

00:00:37,100 --> 00:00:35,880

plans out the trip with you so the

16

00:00:38,840 --> 00:00:37,110

scientists are on one side of the

17

00:00:40,910 --> 00:00:38,850

counter telling us what they want to see

18

00:00:42,380 --> 00:00:40,920

and then we're with the map mapping on a

19

00:00:45,319 --> 00:00:42,390

route and saying well how's this how's

20

00:00:47,600 --> 00:00:45,329

that for the last year and a half

21

00:00:50,150 --> 00:00:47,610

Cassini tour designers have been working

22

00:00:52,580 --> 00:00:50,160

at breakneck speed on plans for an

23

00:00:55,160 --> 00:00:52,590

extended mission it's not what you call

24

00:00:56,930 --> 00:00:55,170

a low stress job by Eddie beads they

25

00:00:59,119 --> 00:00:56,940

essentially lay down on the table what

26
00:01:02,360 --> 00:00:59,129
they want and as far as science goals

27
00:01:04,070 --> 00:01:02,370
and science objectives we come back we

28
00:01:07,190 --> 00:01:04,080
take that off for a couple months you

29
00:01:08,210 --> 00:01:07,200
know apply astrodynamics the people that

30
00:01:10,039 --> 00:01:08,220
want to look at the Rings want to be up

31
00:01:11,899 --> 00:01:10,049
high and look at the rains the other

32
00:01:13,520 --> 00:01:11,909
people want to be down in the same plane

33
00:01:15,200 --> 00:01:13,530
with the Rings where they can visit all

34
00:01:18,170 --> 00:01:15,210
the other moons and that's a huge

35
00:01:20,359 --> 00:01:18,180
tug-of-war so what the tour designers

36
00:01:21,830 --> 00:01:20,369
have to do is to take all of these

37
00:01:24,080 --> 00:01:21,840
different inputs from hundreds of

38
00:01:26,810 --> 00:01:24,090

scientists who say we have to observe

39

00:01:29,090 --> 00:01:26,820

this we want to look at that and put

40

00:01:31,609 --> 00:01:29,100

that together into a very compact new

41

00:01:34,700 --> 00:01:31,619

tour of two years has 17 solidus flybys

42

00:01:37,969 --> 00:01:34,710

added below 2,000 kilometers to at 25

43

00:01:40,550 --> 00:01:37,979

kilometers this tour has 26 Titan flybys

44

00:01:43,069 --> 00:01:40,560

it has two high northern ground tracks

45

00:01:44,149 --> 00:01:43,079

the tight last Titan flybys over here so

46

00:01:45,980 --> 00:01:44,159

this is where it reaches the ring plane

47

00:01:47,990 --> 00:01:45,990

so it kind of moves over a little bit we

48

00:01:50,030 --> 00:01:48,000

show a variety of different tours that

49

00:01:52,399 --> 00:01:50,040

are kind of in different flavors one

50

00:01:55,310 --> 00:01:52,409

makes the Rings people a little bit more

51
00:01:57,889 --> 00:01:55,320
happier than the moon's people okay

52
00:02:00,440 --> 00:01:57,899
goals for this PSG obviously for us we

53
00:02:02,889 --> 00:02:00,450
think it's select the final tour they

54
00:02:06,109 --> 00:02:02,899
raided the tours in terms of red

55
00:02:08,570 --> 00:02:06,119
unacceptable yellow acceptable and green

56
00:02:10,790 --> 00:02:08,580
acceptable but it sounds like 6 h 9 and

57
00:02:14,030 --> 00:02:10,800
eight should either both be

58
00:02:16,010 --> 00:02:14,040
both be read or both be yellow now all

59
00:02:19,310 --> 00:02:16,020
the candidates are out there and they've

60
00:02:22,220 --> 00:02:19,320
got a pic 16 h nine three greens align

61
00:02:24,350 --> 00:02:22,230
and red and in the end it was shades of

62
00:02:27,320 --> 00:02:24,360
green we will continue this in the

63
00:02:29,420 --> 00:02:27,330

executive session the science team

64

00:02:31,960 --> 00:02:29,430

leaders made the final decisions and the

65

00:02:34,850 --> 00:02:31,970

tour was called this you know kind of

66

00:02:36,740 --> 00:02:34,860

hard to pronounce pf6 h9 with that

67

00:02:39,740 --> 00:02:36,750

that's name of this hybrid tour

68

00:02:42,080 --> 00:02:39,750

Cassini's travel itinerary includes 60

69

00:02:46,160 --> 00:02:42,090

additional orbits of Saturn studies of

70

00:02:48,470 --> 00:02:46,170

the Rings the magnetosphere 26 flybys of

71

00:02:50,720 --> 00:02:48,480

Titan and close encounters with other

72

00:02:52,430 --> 00:02:50,730

exotic moons that's real gratifying that

73

00:02:53,840 --> 00:02:52,440

it was a hybrid tour that took kind of

74

00:02:55,670 --> 00:02:53,850

the best of a lot of different tours

75

00:02:58,040 --> 00:02:55,680

that we have been designing the Cassini

76

00:03:00,080 --> 00:02:58,050

mission to Saturn has revolutionized our

77

00:03:03,050 --> 00:03:00,090

knowledge of the ringed planet and the

78

00:03:05,480 --> 00:03:03,060

best maybe yet to come be able to fly

79

00:03:11,140 --> 00:03:05,490

through space in a complex place full of

80

00:03:14,120 --> 00:03:11,150

moons and rings and dust and so on and

81

00:03:17,810 --> 00:03:14,130

be able to navigate this space in such a

82

00:03:20,600 --> 00:03:17,820

way as to give Cassini a chance to make

83

00:03:22,729 --> 00:03:20,610

all the discoveries that the scientists

84

00:03:26,180 --> 00:03:22,739

on the mission would like to see happen

85

00:03:28,040 --> 00:03:26,190

I don't think of it as a wish list I

86

00:03:30,080 --> 00:03:28,050

think of it as a list of potential new

87

00:03:32,690 --> 00:03:30,090

discoveries that will be in the