1
00:00:05,349 --> 00:00:03,110
exactly what cindy does the instrument

2
00:00:08,310 --> 00:00:05,359
only the instrument you know catches

3
00:00:10,310 --> 00:00:08,320
neutral particles and ionized particles

4
00:00:11,990 --> 00:00:10,320
one of the big attractions at every agu

5
00:00:13,910 --> 00:00:12,000
meeting is right here in the exhibit

6
00:00:16,630 --> 00:00:13,920
hall this is where all this stuff of

7
00:00:19,670 --> 00:00:16,640
science is on display

8
00:00:22,470 --> 00:00:19,680
scientific instruments

9
00:00:28,950 --> 00:00:26,070
exploration equipment of all kinds

10
00:00:34,470 --> 00:00:28,960
comic books and apparently comic book

11
00:00:39,350 --> 00:00:36,790
i'm cindy i'm an android space girl

12
00:00:42,150 --> 00:00:39,360
who's also a dog catcher in my spare

13
00:00:43,190 --> 00:00:42,160

time i'm also a nasa mascot for the

14
00:00:45,750 --> 00:00:43,200
cindy

15
00:00:47,670 --> 00:00:45,760
coupled ion neutral dynamics

16
00:00:50,630 --> 00:00:47,680
investigation and as a mission of

17
00:00:53,189 --> 00:00:50,640
opportunity so space dogs are fantastic

18
00:00:54,470 --> 00:00:53,199
i have two called tech and tech

19
00:00:56,950 --> 00:00:54,480
and

20
00:00:58,950 --> 00:00:56,960
space dogs are just like normal dogs

21
00:01:00,869 --> 00:00:58,960
except for they can lose their tails

22
00:01:02,549 --> 00:01:00,879
when they have their tails they're calm

23
00:01:04,950 --> 00:01:02,559
in their lap dogs and they're very

24
00:01:07,109 --> 00:01:04,960
comfortable to have around as pets

25
00:01:09,190 --> 00:01:07,119
but when energy biscuits come from the

26
00:01:11,429 --> 00:01:09,200
sun and the dogs eat them their tails

27
00:01:13,350 --> 00:01:11,439
pop off and they start chasing them

28
00:01:14,950 --> 00:01:13,360
around they're very very jumpy and

29
00:01:17,429 --> 00:01:14,960
energetic

30
00:01:19,670 --> 00:01:17,439
now my job as a dog catcher is to catch

31
00:01:22,070 --> 00:01:19,680
and release these dogs and i also study

32
00:01:24,310 --> 00:01:22,080
their migration patterns and what

33
00:01:25,510 --> 00:01:24,320
heights they live at in mice region of

34
00:01:27,190 --> 00:01:25,520
space

35
00:01:28,149 --> 00:01:27,200
their temperatures and how they move

36
00:01:29,749 --> 00:01:28,159
around

37
00:01:32,310 --> 00:01:29,759
there are a lot of people on earth that

38
00:01:34,870 --> 00:01:32,320

use my space dog data to investigate

39
00:01:36,710 --> 00:01:34,880
what's going on up in my levels of space

40
00:01:38,710 --> 00:01:36,720
there's a group at university in texas

41
00:01:40,469 --> 00:01:38,720
of dallas that is doing this

42
00:01:42,950 --> 00:01:40,479
one of the talks will be presented here

43
00:01:52,950 --> 00:01:42,960
at agu by a grad student named angeline

44
00:01:58,550 --> 00:01:56,149
in the out rifts to provide constraints

45
00:02:01,749 --> 00:01:58,560
on the lower thermostat

46
00:02:04,069 --> 00:02:01,759
so the talk i gave used the cindy data

47
00:02:05,990 --> 00:02:04,079
the ion velocities

48
00:02:09,430 --> 00:02:06,000
and compared them to the results from a

49
00:02:12,710 --> 00:02:09,440
model in order to provide boundaries

50
00:02:14,229 --> 00:02:12,720
on the magnitude of winds lower down in

51
00:02:15,990 --> 00:02:14,239
the atmosphere

52
00:02:17,670 --> 00:02:16,000
these winds are hard to measure and we

53
00:02:20,390 --> 00:02:17,680
don't currently have any satellites

54
00:02:22,869 --> 00:02:20,400
measuring them at that level so cindy

55
00:02:27,589 --> 00:02:22,879
studies the ionosphere which is the

56
00:02:34,229 --> 00:02:30,869
it's on board a satellite that's at the

57
00:02:36,390 --> 00:02:34,239
lowest 400 kilometers above the earth

58
00:02:39,430 --> 00:02:36,400
the part of cindy that i use measures

59
00:02:42,390 --> 00:02:39,440
the movement the temperature and the

60
00:02:43,750 --> 00:02:42,400
type and amount of the ions that it runs

61
00:02:46,229 --> 00:02:43,760
across

62
00:02:48,790 --> 00:02:46,239
so most of the atmosphere

63
00:02:51,270 --> 00:02:48,800

is neutral it's breathable it's made up

64
00:02:53,270 --> 00:02:51,280
of molecules and atoms

65
00:02:55,190 --> 00:02:53,280
and it gets thinner the further you get

66
00:02:57,990 --> 00:02:55,200
away from the earth

67
00:02:58,869 --> 00:02:58,000
by the time you get up to the level

68
00:03:01,110 --> 00:02:58,879
where

69
00:03:03,350 --> 00:03:01,120
the satellite that we're using xenops is

70
00:03:05,430 --> 00:03:03,360
at you have less than one percent of the

71
00:03:07,430 --> 00:03:05,440
atmosphere left

72
00:03:09,670 --> 00:03:07,440
when it's this thin

73
00:03:10,949 --> 00:03:09,680
it's very easy for radiation that comes

74
00:03:13,509 --> 00:03:10,959
from the sun

75
00:03:17,270 --> 00:03:13,519
to excite the particles and throw off an

76
00:03:19,110 --> 00:03:17,280
electron and cause an ion to be formed

77
00:03:20,869 --> 00:03:19,120
and the formation of the ionosphere is

78
00:03:23,750 --> 00:03:20,879
it protects us from most of the sun's

79
00:03:27,670 --> 00:03:23,760
radiation it absorbs a lot of the cosmic

80
00:03:30,550 --> 00:03:27,680
rays the x-rays and most of the

81
00:03:34,390 --> 00:03:30,560
uv radiation that comes out what made

82
00:03:36,470 --> 00:03:34,400
you decide to become a scientist

83
00:03:37,910 --> 00:03:36,480
well my first trip to the planetarium

84
00:03:40,550 --> 00:03:37,920
really

85
00:03:42,229 --> 00:03:40,560
i loved the stars and

86
00:03:48,869 --> 00:03:42,239
the

87
00:03:49,750 --> 00:03:48,879
so i decided

88
00:03:51,190 --> 00:03:49,760

that

89
00:03:53,270 --> 00:03:51,200
it was the most worthwhile and

90
00:03:56,149 --> 00:03:53,280
interesting thing to study

91
00:04:00,550 --> 00:03:56,159
i'd always been good at math and

92
00:04:03,030 --> 00:04:00,560
once i realized that i loved physics

93
00:04:05,270 --> 00:04:03,040
it was a no-brainer

94
00:04:06,949 --> 00:04:05,280
to find out more when you don't have a

95
00:04:08,390 --> 00:04:06,959
physics background can be a little bit

96
00:04:10,710 --> 00:04:08,400
difficult

97
00:04:13,350 --> 00:04:10,720
but one way i've used to explain to my

98
00:04:15,990 --> 00:04:13,360
friends and family is the comic books

99
00:04:18,229 --> 00:04:16,000
the cindy comic books cindy and space

100
00:04:21,430 --> 00:04:18,239
and cindy in the electric atmosphere

101
00:04:25,270 --> 00:04:21,440
they do a really good job of explaining

102
00:04:28,390 --> 00:04:25,280
in interesting terms and

103
00:04:31,749 --> 00:04:28,400
basic but relevant terms that do explain

104
00:04:32,950 --> 00:04:31,759
pretty much everything about what i do

105
00:04:34,950 --> 00:04:32,960
and about