1
00:00:00,690 --> 00:00:02,720
>> What better way to
celebrate Earth Day than to talk

2
00:00:02,720 --> 00:00:05,210
about a facility onboard the
station that does just that.

3
00:00:05,210 --> 00:00:06,470
It studies Earth.

4
00:00:06,470 --> 00:00:08,650
It's called the Window
Observational Research Facility

5
00:00:08,650 --> 00:00:10,760
and it's managed here in
Marshall Space Flight Center.

6
00:00:10,760 --> 00:00:13,370
And joining me now is the
project manager Yancy Young.

7
00:00:13,370 --> 00:00:16,100
Yancy, first of all, tell
us about this facility.

8
00:00:16,100 --> 00:00:17,670
We call it WORF for
short, right?

9
00:00:17,670 --> 00:00:20,630
>> Right. WORF was designed
to be used in conjunction

10
00:00:20,630 --> 00:00:22,990
with the window in the
Destiny Laboratory.

11

00:00:22,990 --> 00:00:25,850
It's currently on board,
installed over the window.

12
00:00:25,850 --> 00:00:29,150
It serves two functions: That's
basically to provide resources

13
00:00:29,150 --> 00:00:32,350
in the environment required
by the Earth Science payloads,

14
00:00:32,350 --> 00:00:35,110
as well as protect
the window itself

15
00:00:35,110 --> 00:00:37,630
from any inadvertent damage
which could be caused by,

16
00:00:37,630 --> 00:00:41,080
you know, floating objects or
incidental contact by the crew.

17
00:00:41,080 --> 00:00:42,090
>> What makes this unique?

18
00:00:42,090 --> 00:00:43,930
There are lots of things where
you can take a picture and look

19
00:00:43,930 --> 00:00:46,830
out and look down at Earth,
but what makes this one unique?

20
00:00:46,830 --> 00:00:50,020
>> Well, if you think about
it's sort of like in your home

21
00:00:50,020 --> 00:00:51,130

at night to look out the window.

22
00:00:51,130 --> 00:00:53,400
You know, if the light's on
in your room and you're trying

23
00:00:53,400 --> 00:00:56,060
to look out, what you see is
your reflection of the room

24
00:00:56,060 --> 00:00:58,340
in that window, but if
you cut that light off,

25
00:00:58,340 --> 00:01:00,610
then you can see
outside the house.

26
00:01:00,610 --> 00:01:04,160
Well, similar with WORF and
with the window in Destiny.

27
00:01:04,160 --> 00:01:06,060
When there's light
in the background,

28
00:01:06,060 --> 00:01:09,290
it reflects off the window and
it causes, you know, reflections

29
00:01:09,290 --> 00:01:11,140
and distorts the image.

30
00:01:11,140 --> 00:01:14,170
So WORF was designed,
it's payload volume,

31
00:01:14,170 --> 00:01:19,510
it's coated with a nonreflective
nonglaring finish to sort

32
00:01:19,510 --> 00:01:23,020
of give like a darkroom sort of
say so that it's completely dark

33
00:01:23,020 --> 00:01:26,370
so that the cameras
can see out the window.

34
00:01:26,370 --> 00:01:28,140
It also -- you know,
another thing

35
00:01:28,140 --> 00:01:30,940
with Earth Science observations
is they need stability.

36
00:01:30,940 --> 00:01:32,670
They don't need to be
shaken around 'cause

37
00:01:32,670 --> 00:01:34,990
that can distort the image,
you know, get jitter in there.

38
00:01:34,990 --> 00:01:36,980
So the rack itself was
designed specifically

39
00:01:36,980 --> 00:01:39,020
to minimize any type of
vibration; it could be from,

40
00:01:39,020 --> 00:01:41,930
you know, the crew or just the
station operations in general

41
00:01:41,930 --> 00:01:44,440
from being transmitted
up into the instrument.

42
00:01:44,440 --> 00:01:45,890
>> Wow. So you've had a lot

43
00:01:45,890 --> 00:01:47,980
of investigations
use this facility.

44
00:01:47,980 --> 00:01:50,440
Tell us about some of those and
some of the things we've seen.

45
00:01:50,440 --> 00:01:53,010
>> Okay. Well, we have what
we call three residents

46
00:01:53,010 --> 00:01:54,730
so far of WORF.

47
00:01:54,730 --> 00:01:57,220
It's been on orbit
since about 2010.

48
00:01:57,220 --> 00:01:59,110
So roughely about
three years now.

49
00:01:59,110 --> 00:02:01,280
The first is called
EarthKAM which stands

50
00:02:01,280 --> 00:02:04,950
for Earth Knowledge Acquired
by Middle School Students,

51
00:02:04,950 --> 00:02:08,330
and it's basically it's a
digital camera that's operated

52

00:02:08,330 --> 00:02:11,030
by a Web interface with
students, and, say,

53
00:02:11,030 --> 00:02:12,820
if you have a middle school,
say, here in Huntsville

54
00:02:12,820 --> 00:02:15,710
for example, it's studying some
part of the globe [inaudible]

55
00:02:15,710 --> 00:02:18,970
on the other side of the world,
and they want to take a picture

56
00:02:18,970 --> 00:02:21,590
of that area to support
their studies or some type

57
00:02:21,590 --> 00:02:25,220
of hypothesis they're discussing
in class, they can, you know,

58
00:02:25,220 --> 00:02:28,130
command through the Web
interface, take a picture

59
00:02:28,130 --> 00:02:29,910
of that area, have it
transferred back to them

60
00:02:29,910 --> 00:02:31,890
so they can see what they're
actually studying about.

61
00:02:31,890 --> 00:02:32,790
>> A great learning tool.

62
00:02:32,790 --> 00:02:33,330

>> Yes, it is.

63
00:02:33,330 --> 00:02:34,640
Yes, it is.

64
00:02:34,640 --> 00:02:37,580
>> So you've just have ISSAC,
another camera, wrap up work

65
00:02:37,580 --> 00:02:38,520
in the facility, correct?

66
00:02:38,520 --> 00:02:39,430
>> That's right, Lori.

67
00:02:39,430 --> 00:02:42,110
ISSAC, which stands for the
ISS Agricultural Camera was

68
00:02:42,110 --> 00:02:45,190
developed by the
University of North Dakota,

69
00:02:45,190 --> 00:02:46,750
and their objective's
basically to look

70
00:02:46,750 --> 00:02:50,750
at the northern Great Plain
areas, Montana, Wyoming,

71
00:02:50,750 --> 00:02:52,750
the Dakotas, parts of Minnesota,

72
00:02:52,750 --> 00:02:55,200
looking at agricultural
uses of the land.

73
00:02:55,200 --> 00:02:58,490

It was a near infrared
instrument, so they could tell

74
00:02:58,490 --> 00:03:02,820
by the chlorophyll action
of the vegetation, you know,

75
00:03:02,820 --> 00:03:06,110
what was dry, what was too
wet, what was overfertilized,

76
00:03:06,110 --> 00:03:07,130
what was underfertilized.

77
00:03:07,130 --> 00:03:08,820
>> So the images
showed them this?

78
00:03:08,820 --> 00:03:12,040
>> It picks up the heat
from the ground basically,

79
00:03:12,040 --> 00:03:15,010
and they can tell by the
shades of the red, like I said,

80
00:03:15,010 --> 00:03:17,850
what's been overfertilized,
underfertilized, too wet,

81
00:03:17,850 --> 00:03:20,710
too dry, and they take this
information and send it

82
00:03:20,710 --> 00:03:22,750
out to the community
of farmers, ranchers,

83
00:03:22,750 --> 00:03:25,420
the land resource managers, and

they can use this information

84
00:03:25,420 --> 00:03:27,340
for the following season,
you know, when they get ready

85
00:03:27,340 --> 00:03:29,590
to do their planting or
harvesting to look at kind

86
00:03:29,590 --> 00:03:32,240
of need to put more water
here, less water here,

87
00:03:32,240 --> 00:03:34,510
may apply additional
fertilizer or, you know,

88
00:03:34,510 --> 00:03:38,670
less fertilizer to, you know, to
increase the yield of the crops.

89
00:03:38,670 --> 00:03:41,620
>> So we moved ISSAC out so
that ISERV could move in.

90
00:03:41,620 --> 00:03:42,660
Tell us about that.

91
00:03:42,660 --> 00:03:45,560
>> Well, ISERV serve which is
the ISS Severe Environmental

92
00:03:45,560 --> 00:03:49,180
Research and Visualization
System just went in the WORF

93
00:03:49,180 --> 00:03:52,830
in January, and it's a
joint venture between NASA

94
00:03:52,830 --> 00:03:55,900
and the U.S. Agency for
International Development,

95
00:03:55,900 --> 00:03:59,660
and they look at areas like
Africa, Central American,

96
00:03:59,660 --> 00:04:02,450
South American, parts of the
Himalayas, and they also look

97
00:04:02,450 --> 00:04:07,260
at land usage as well
as disaster relief.

98
00:04:07,260 --> 00:04:10,100
>> So a lot of users in
this facility, correct?

99
00:04:10,100 --> 00:04:10,600
>> Yes, ma'am.

100
00:04:10,600 --> 00:04:11,510
We're very excited about that.

101
00:04:11,510 --> 00:04:13,920
We actually have a new
investigation hopefully coming

102
00:04:13,920 --> 00:04:17,800
online late next year called
Meteor, which will be looking

103
00:04:17,800 --> 00:04:21,310
at how meteors enter the
atmosphere fear and disperse.

104

00:04:21,310 --> 00:04:22,430
>> So for folks here on Earth

105
00:04:22,430 --> 00:04:25,220
who don't know why this
facility would be so important

106
00:04:25,220 --> 00:04:26,610
to them, tell us why that is.

107
00:04:26,610 --> 00:04:28,390
>> That's a really good
question, especially since,

108
00:04:28,390 --> 00:04:30,730
you know, Earth Day's coming
along and we're stepping back

109
00:04:30,730 --> 00:04:33,760
as a community and
looking at how we manage,

110
00:04:33,760 --> 00:04:36,660
how we're good stewards of
the Earth its resources.

111
00:04:36,660 --> 00:04:40,710
And WORF and the instruments we
support enable us to, you know,

112
00:04:40,710 --> 00:04:43,660
take images and acquire data
not only of our atmosphere,

113
00:04:43,660 --> 00:04:46,460
of oceans, and the
land resources,

114
00:04:46,460 --> 00:04:49,730
it helps us better understand

how not only maybe effects we

115
00:04:49,730 --> 00:04:52,430
as humans induce on our
environment, but also those

116
00:04:52,430 --> 00:04:55,220
that nature actually
induces well.

117
00:04:55,220 --> 00:04:57,110
You know, maybe that one
day will help us come

118
00:04:57,110 --> 00:04:58,620
up with better mitigation
techniques

119
00:04:58,620 --> 00:05:00,170
to be better stewards.

120
00:05:00,170 --> 00:05:02,160
>> A lot off usage, and I don't
think you'll have any trouble

121
00:05:02,160 --> 00:05:02,690
finding people.

122
00:05:02,690 --> 00:05:04,470
Maybe we need another
window up there?

123
00:05:04,470 --> 00:05:05,360
>> Hey, I'm all for it.

124
00:05:05,360 --> 00:05:06,040
I'll see what I can do.

125
00:05:06,040 --> 00:05:06,840

>> All right.

126
00:05:06,840 --> 00:05:07,580
Thanks, Yancy.