



1  
00:00:05,600 --> 00:00:10,799  
[ Birds chirping/Wind ]

2  
00:00:10,800 --> 00:00:17,718  
[ Music ]

3  
00:00:22,596 --> 00:00:24,596  
[ Frog croaking ]

4  
00:00:24,596 --> 00:00:26,595  
[ Boat engine ]

5  
00:00:26,835 --> 00:00:28,915  
>> When I think of NASA  
I think of rocket ships.

6  
00:00:29,754 --> 00:00:30,874  
>> When I think of NASA I think

7  
00:00:30,874 --> 00:00:32,694  
of like space ships  
and outer space.

8  
00:00:32,694 --> 00:00:33,813  
>> I think of space travel.

9  
00:00:33,813 --> 00:00:37,852  
I think of -- the universe.

10  
00:00:37,852 --> 00:00:38,782  
>> The space shuttle.

11  
00:00:38,792 --> 00:00:39,652  
>> Hubble Telescope.

12  
00:00:39,652 --> 00:00:41,271  
>> Space exploration.

13

00:00:41,271 --> 00:00:45,990

>> Over the last few years I think NASA is more involved

14

00:00:45,990 --> 00:00:51,388

in just the total environment effort.

15

00:00:51,388 --> 00:00:53,908

>> I had no clue NASA came out to New Orleans

16

00:00:53,908 --> 00:00:55,147

and did research about the wetlands.

17

00:00:55,147 --> 00:00:56,907

>> I'm so glad!

18

00:00:56,907 --> 00:00:58,346

I mean you guys have rockets.

19

00:00:58,346 --> 00:00:59,626

You can fix this.

20

00:00:59,626 --> 00:01:04,185

Right? I hope you can [laughing].

21

00:01:04,185 --> 00:01:08,114

If you can land on the moon, you can fix the wetlands.

22

00:01:08,114 --> 00:01:11,193

[ Music ]

23

00:01:12,383 --> 00:01:14,382

[ Air Traffic Control chatter ]

24

00:01:14,382 --> 00:01:19,421

[ Airplane taking off ]

25

00:01:22,580 --> 00:01:25,619

>> Here we go, new line 32032 loaded.

26

00:01:25,619 --> 00:01:26,619

>> [ Chatter ]

27

00:01:26,619 --> 00:01:29,138

>> Copy that, PPA engage.

28

00:01:29,138 --> 00:01:30,258

>> And release.

29

00:01:30,258 --> 00:01:31,777

>> Line started.

30

00:01:31,777 --> 00:01:33,297

>> Copy. Line started.

31

00:01:33,297 --> 00:01:37,096

[ Music ]

32

00:01:37,096 --> 00:01:38,615

>> I'm from Southern Louisiana.

33

00:01:38,615 --> 00:01:40,595

This is a really unique place.

34

00:01:40,595 --> 00:01:43,294

I still have family and  
friends here and I just want

35

00:01:43,294 --> 00:01:46,053

to keep it safe and  
protect what they have.

36

00:01:46,053 --> 00:01:47,593

[ Birds Chirping ]

37

00:01:47,593 --> 00:01:50,492

[ Jet flying ]

38

00:01:50,492 --> 00:01:52,771

>> Right now, Sam, the  
PPA operator in the back,

39

00:01:52,771 --> 00:01:55,271

he's now coordinating  
with the radar operator

40

00:01:55,271 --> 00:01:57,130

and they're flying the airplane.

41

00:01:57,130 --> 00:02:00,049

This particular mission, we're  
imaging kind of the wetlands

42

00:02:00,049 --> 00:02:02,649

and the -- basically the  
New Orleans, Louisiana area.

43

00:02:02,649 --> 00:02:06,228

>> UAVSAR has been flying over  
Louisiana and collecting data

44

00:02:06,228 --> 00:02:09,727

about two to three  
times a year since 2009.

45

00:02:09,727 --> 00:02:14,445

What we do is we send out pulses  
from the radar and we track both

46

00:02:14,445 --> 00:02:18,384

when we receive the pulses and

exactly where the antenna was

47

00:02:18,384 --> 00:02:20,384

when we received the pulse.

48

00:02:20,384 --> 00:02:22,803

And that way we can  
create, synthetically,

49

00:02:22,803 --> 00:02:26,742

a very long antenna with very  
high resolution on the ground.

50

00:02:26,742 --> 00:02:30,561

>> PPA is Platform  
Precision Autopilot system.

51

00:02:30,561 --> 00:02:35,000

What it does is goes through a  
tube with a very precise line.

52

00:02:35,000 --> 00:02:37,319

Flying over the same line  
over and over allows us

53

00:02:37,319 --> 00:02:40,378

to study the wetland over time.

54

00:02:40,378 --> 00:02:42,617

>> By understanding  
how the deltas

55

00:02:42,617 --> 00:02:44,837

and everything work we can  
potentially save many lives.

56

00:02:44,837 --> 00:02:49,016

[ Music ]

57

00:02:51,935 --> 00:02:53,974

>> Wetlands are important  
for a few reasons.

58

00:02:53,974 --> 00:02:55,954

Probably the biggest reason that  
they are important in the state

59

00:02:55,954 --> 00:03:00,293

of Louisiana is that they  
help push back storm surge

60

00:03:00,293 --> 00:03:03,652

and they provide a space  
between the land and the sea

61

00:03:03,652 --> 00:03:05,711

and that helps keep  
the sea at bay,

62

00:03:05,711 --> 00:03:07,810

which helps keep  
flooding at bay.

63

00:03:07,810 --> 00:03:09,610

>> Also for economic reasons.

64

00:03:09,610 --> 00:03:13,489

The Port of New Orleans is  
big business and they have had

65

00:03:13,489 --> 00:03:17,648

to deal a lot with the wetlands  
losses affecting how goods

66

00:03:17,648 --> 00:03:21,607

and services are moved up and  
down the Mississippi River.

67

00:03:21,607 --> 00:03:23,566

It doesn't matter where you  
live in the United States,

68

00:03:23,566 --> 00:03:25,506

40% of the seafood, it's all  
fished right here off the coast

69

00:03:25,506 --> 00:03:28,325

of Southern Louisiana.

70

00:03:28,325 --> 00:03:30,424

Also, the oil infrastructure,

71

00:03:30,424 --> 00:03:33,443

especially the refining is  
right here on the coast.

72

00:03:33,443 --> 00:03:35,603

So if you like to eat seafood

73

00:03:35,603 --> 00:03:37,782

and you drive a car  
[laughing] you are most likely,

74

00:03:37,782 --> 00:03:39,762

no matter where you live  
in the United States,

75

00:03:39,762 --> 00:03:41,261

affected by the wetlands  
loss that's happening

76

00:03:41,261 --> 00:03:43,201

to the Southern Louisiana  
right now.

77

00:03:43,201 --> 00:03:46,400

[ Music ]

78

00:03:46,840 --> 00:03:49,659

>> This land loss is caused  
by a number of reasons,

79

00:03:49,659 --> 00:03:52,658

but some of the biggest  
ones are the channelization

80

00:03:52,658 --> 00:03:55,417

of the Mississippi River  
that prevents sediment

81

00:03:55,417 --> 00:03:58,516

from reaching the wetlands, the  
construction of a large number

82

00:03:58,516 --> 00:04:00,656

of canals, and subsidence.

83

00:04:00,656 --> 00:04:03,975

The land is sinking.

84

00:04:03,975 --> 00:04:07,214

UAVSAR provides the kind of  
broad-scale view of the coast

85

00:04:07,214 --> 00:04:10,793

that we need to understand  
how fast it's changing,

86

00:04:10,793 --> 00:04:13,132

how fast the land is sinking.

87

00:04:13,132 --> 00:04:16,231

>> You see it in streets, which  
are in horrible condition.

88

00:04:16,231 --> 00:04:18,271

Those areas that are  
subsiding are going

89

00:04:18,271 --> 00:04:20,350

to be most vulnerable  
to sea level rise.

90

00:04:20,350 --> 00:04:22,310

They're going to be most  
vulnerable to erosion

91

00:04:22,310 --> 00:04:23,589

when the storms come in.

92

00:04:23,589 --> 00:04:25,589

[ Jet flying ]

93

00:04:25,589 --> 00:04:27,168

>> OK NASA 502,  
I show you in the block now

94

00:04:27,168 --> 00:04:28,458

so you're pretty much just going

95

00:04:28,458 --> 00:04:29,888

to be flying on your  
course, now.

96

00:04:29,888 --> 00:04:30,967

Correct?

97

00:04:30,967 --> 00:04:33,967

>> 502, we're going to do one  
more circuit here for timing

98

00:04:33,967 --> 00:04:35,186

and then we'll be going inbound.

99

00:04:35,186 --> 00:04:35,926

>> All right.

100

00:04:37,166 --> 00:04:39,605

>> This particular study  
today we're looking

101

00:04:39,605 --> 00:04:40,915

at delta formation.

102

00:04:40,925 --> 00:04:43,304

For all the other  
problems Louisiana has,

103

00:04:43,324 --> 00:04:47,413

it also has these two  
very unique deltas

104

00:04:47,413 --> 00:04:48,523

that are actually growing.

105

00:04:48,523 --> 00:04:51,612

We can look at how  
natural deltas form

106

00:04:51,642 --> 00:04:54,811

so that we can understand  
more about sediment deposition

107

00:04:54,841 --> 00:04:58,010

and maybe try to reverse  
loss of sediments in many

108

00:04:58,040 --> 00:05:00,509

of the other deltas  
around the world.

109

00:05:01,719 --> 00:05:03,798

One thing we've seen  
recently is a lot

110

00:05:03,798 --> 00:05:06,557

of subsidence around the area.

111

00:05:06,557 --> 00:05:10,876

And often, right next to the  
river or close to the levees,

112

00:05:10,876 --> 00:05:13,276

and whenever the ground  
subsides in an area,

113

00:05:13,276 --> 00:05:15,755

it actually brings  
the levees down also.

114

00:05:15,755 --> 00:05:18,074

>> Line complete, PPA disengage.

115

00:05:18,074 --> 00:05:19,954

>> Copy. Got it.

116

00:05:19,954 --> 00:05:23,513

[ Airplane landing ]

117

00:05:23,513 --> 00:05:26,232

>> I hope to keep working  
on this for a long time.

118

00:05:26,232 --> 00:05:28,661

I think that we're  
collecting really great data.

119

00:05:28,671 --> 00:05:30,811

One thing that's happening  
is we're getting more

120

00:05:30,831 --> 00:05:33,740

and more people locally  
involved in this kind of science

121

00:05:33,740 --> 00:05:35,869  
and the more local  
people are involved,

122  
00:05:35,869 --> 00:05:37,859  
the more use it will have.

123  
00:05:37,869 --> 00:05:44,427  
[ Bells Chiming/Music ]

124  
00:05:44,427 --> 00:05:46,926  
>> The levee system  
goes with the wetlands.

125  
00:05:46,926 --> 00:05:49,026  
If we don't take  
care of the wetlands

126  
00:05:49,026 --> 00:05:50,745  
and start helping the  
wetlands come back,

127  
00:05:50,745 --> 00:05:54,664  
we're going to lose New  
Orleans as we see it today.

128  
00:05:54,664 --> 00:05:56,024  
>> The practical thing

129  
00:05:56,024 --> 00:05:59,863  
that UAVSAR can help inspire  
is the state's coastal

130  
00:05:59,863 --> 00:06:01,342  
restoration plan.

131  
00:06:01,342 --> 00:06:04,741  
One of the big complications  
with the plan is

132

00:06:04,741 --> 00:06:10,060

that we don't know issues of  
subsidence very well to the kind

133

00:06:10,060 --> 00:06:11,819

of fine scale degree  
that we need

134

00:06:11,819 --> 00:06:14,219

to plan restoration projects.

135

00:06:14,219 --> 00:06:19,217

And UAVSAR provides us  
with the kind of fine scale

136

00:06:19,217 --> 00:06:21,937

but broad scale measurements  
that we need

137

00:06:21,937 --> 00:06:25,136

to advance Louisiana's master  
plan for a sustainable coast.

138

00:06:25,136 --> 00:06:27,055

>> People say this is  
the northernmost point

139

00:06:27,055 --> 00:06:28,175

in the Caribbean.

140

00:06:28,175 --> 00:06:29,574

I don't know why  
it was built here

141

00:06:29,574 --> 00:06:31,094

but I'm thankful that it was.

142

00:06:31,094 --> 00:06:33,093

You know, we have hundreds

of years of culture.

143

00:06:33,093 --> 00:06:34,413

And what I think is different

144

00:06:34,413 --> 00:06:36,413

about New Orleans is our  
culture is on the surface.

145

00:06:36,413 --> 00:06:40,052

It's not just a building or it's  
not just a kind of food we eat.

146

00:06:40,052 --> 00:06:42,851

But it is everything and  
it permeates our rhythm,

147

00:06:42,851 --> 00:06:44,850

our way of life,  
our way we talk.

148

00:06:44,850 --> 00:06:47,689

It hangs in the air  
almost like this humidity

149

00:06:47,689 --> 00:06:49,369

that is so oppressive here.

150

00:06:49,369 --> 00:06:51,688

I want to do everything  
we can to protect our city

151

00:06:51,688 --> 00:06:54,647

so that we don't have another  
catastrophe, loss of life,

152

00:06:54,647 --> 00:06:57,047

loss of people, and loss of what  
I think is the greatest city

