
CYGNSS

1
00:00:00,440 --> 00:00:04,580
Hurricanes are one of the most destructive
forces in nature.

2
00:00:04,580 --> 00:00:09,720
Accuracy in tracking and forecasting these
storms has improved in recent years, but it

3
00:00:09,720 --> 00:00:12,879
is still difficult to predict how they will
intensify.

4
00:00:12,879 --> 00:00:19,540
A new NASA mission using eight small satellites
soon will help meteorologists' better understand

5
00:00:19,540 --> 00:00:25,410
and forecast how tropical cyclones, typhoons
and hurricanes grow.

6
00:00:25,410 --> 00:00:30,910
NASA's Cyclone Global Navigation Satellite
System, or CYGNSS, spacecraft are designed

7
00:00:30,910 --> 00:00:36,519
to probe the inner core of tropical cyclones
providing meteorologists with more precise

8
00:00:36,519 --> 00:00:42,269
measurements of ocean surface winds and the
strong gusts in and near the eye of hurricanes.

9
00:00:42,269 --> 00:00:47,309
The CYGNSS satellites were developed by researchers
at the University of Michigan in Ann Arbor

10
00:00:47,309 --> 00:00:52,050
and Southwest Research Institute in San Antonio,
Texas.

11
00:00:52,050 --> 00:00:57,639
The eight satellites arrived at Vandenberg
Air Force Base in California on Sept. 28,

12
00:00:57,639 --> 00:01:04,590
2016 for preflight processing, with the work
taking place in Orbital ATK's Building 1555

13
00:01:04,590 --> 00:01:06,400
at the West Coast launch site.

14
00:01:06,400 --> 00:01:11,650
Final assembly included installation and testing
of power-producing solar panels on each of

15
00:01:11,650 --> 00:01:16,400
the 61-pound, 5.2-foot-long satellites.

16
00:01:16,400 --> 00:01:21,440
Once each CYGNSS micro satellite was fully
checked out, it was installed on a cylindrical

17
00:01:21,440 --> 00:01:25,260
deployment module developed by the Sierra
Nevada Corporation.

18
00:01:25,260 --> 00:01:32,250
While the CYGNSS satellites were being processed,
the Orbital ATK Pegasus XL rocket was being

19
00:01:32,250 --> 00:01:35,560
prepared in another part of the same building.

20
00:01:35,560 --> 00:01:42,490
The three-stage, solid-fueled launch vehicle
arrived at Vandenberg on April 19, 2016.

21
00:01:42,490 --> 00:01:47,050
When the eight CYGNSS satellites were ready

and encapsulated in their payload faring,

22
00:01:47,050 --> 00:01:52,840
the assembly was mated to the 58-foot-long,
50,990-pound Pegasus rocket.

23
00:01:52,840 --> 00:01:58,340
The combined Pegasus XL-CYGNSS combination
then was fully checked out and mated to the

24
00:01:58,340 --> 00:02:03,870
bottom of Orbital ATK's L-1011 aircraft known
as Stargazer.

25
00:02:03,870 --> 00:02:09,880
On Dec. 2, 2016, the combination was flown
cross-country to the launch site, Cape Canaveral

26
00:02:09,880 --> 00:02:12,440
Air Force Station in Florida.

27
00:02:12,440 --> 00:02:18,050
On launch day, the L-1011 Stargazer will take
off from the Cape's skid strip runway.

28
00:02:18,050 --> 00:02:24,640
The Pegasus rocket will be carried aloft to
an altitude of about 39,000 feet.

29
00:02:24,640 --> 00:02:28,450
At launch time, the aircraft will release
the Pegasus rocket.

30
00:02:28,450 --> 00:02:33,120
Five seconds later, the solid propellant engine
will ignite and boost the eight hurricane

31
00:02:33,120 --> 00:02:37,710
observatories to orbit about 316 miles above
the Earth.

32
00:02:37,710 --> 00:02:43,090
Once in orbit, the CYGNSS satellites will
begin a global study to better understand

33
00:02:43,090 --> 00:02:46,900
and forecast how hurricanes intensify.