
Orbital ATK
Pegasus
UCB • OA • NRL • UTD • SDL • CSL • NASA
ICON
Ionospheric Connection Explorer
COUNTDOWN TO T-ZERO

1
00:00:02,020 --> 00:00:05,300
Where does Earth's atmosphere end and space begin?

2
00:00:06,420 --> 00:00:12,860
In a mysterious region of space scientists
call the ionosphere - a volatile place where

3
00:00:12,870 --> 00:00:16,710
terrestrial weather from below meets space
weather from above.

4
00:00:16,710 --> 00:00:22,020
It’s also where our astronauts and critical
space assets orbit.

5
00:00:22,020 --> 00:00:27,140
Without a proper understanding of this dynamic
region in space, the technology and communication

6
00:00:27,320 --> 00:00:30,460
we rely so heavily upon could be at risk.

7
00:00:31,960 --> 00:00:37,920
That’s why NASA is launching the Ionospheric
Connection Explorer, or ICON – to give us

8
00:00:37,920 --> 00:00:38,920
answers.

9
00:00:38,920 --> 00:00:45,140
"The primary goal of the mission is to gain
an understanding between the weather here

10
00:00:45,140 --> 00:00:49,929
in our atmosphere, and the ionosphere in space.

11
00:00:49,929 --> 00:00:54,629
We don't quite have a handle on what's going
on up there in the ionosphere, so this will

12
00:00:54,629 --> 00:00:56,809
give us an opportunity to understand that."

13
00:00:56,809 --> 00:01:03,370
The ICON spacecraft only weighs 364 pounds
so NASA’s Launch Services Program chose

14
00:01:03,370 --> 00:01:09,460
Northrop Grumman's air-launched Pegasus launch
system to deliver it into a 360-mile-high

15
00:01:09,460 --> 00:01:10,460
orbit.

16
00:01:10,460 --> 00:01:13,689
"We selected the Pegasus XL launch vehicle.

17
00:01:13,689 --> 00:01:18,110
It provided an excellent combination of mission
performance and flexibility for the mission

18
00:01:18,110 --> 00:01:21,630
design for a spacecraft of the mass of ICON."

19
00:01:21,630 --> 00:01:28,500
"What's unique about the Pegasus rocket is
that it is an air-launched vehicle, and that

20
00:01:28,500 --> 00:01:32,280
allows us to launch from anywhere in the world."

21
00:01:33,360 --> 00:01:38,660
The challenge with processing Pegasus is that
it’s a flying solid rocket motor - solid

22
00:01:38,660 --> 00:01:42,380
fuel ready to burn as soon as it’s ignited.

23
00:01:42,380 --> 00:01:44,620
(Launch countdown nats)

24
00:01:55,100 --> 00:01:58,320
It requires special attention - an explosion-proof

25
00:01:58,329 --> 00:02:03,020
processing facility at Vandenberg Air Force
Base in California – where the spacecraft

26
00:02:03,020 --> 00:02:08,450
must be mated to the rocket and sealed inside
its protective fairing.

27
00:02:08,450 --> 00:02:12,540
It's one of the few launch systems in the
world where the payload is attached to the

28
00:02:12,540 --> 00:02:14,780
launch vehicle before it's encapsulated.

29
00:02:16,230 --> 00:02:20,400
Once complete, Pegasus is free to launch from
anywhere in the world.

30
00:02:20,400 --> 00:02:24,650
"Once we've established that we're ready,
we then transport our entire launch team and

31
00:02:24,650 --> 00:02:28,810
hardware to another part of the world so that
we can insert ourselves into the proper trajectory."

32
00:02:28,810 --> 00:02:36,240
But to get there, Pegasus still needs to be
strapped to the belly of the L-1011 Stargazer.

33
00:02:37,400 --> 00:02:43,040
Strapping 55,000 pounds of solid rocket fuel

to the bottom of an airplane is tricky, but

34
00:02:43,040 --> 00:02:46,880
these rocket scientists and engineers are
up to the task.