
Ceres-O-S
Marc Rayman
Dawn Chief Engineer
and Mission Director

1
00:00:00,300 --> 00:00:04,970
[MUSIC]

2
00:00:04,970 --> 00:00:07,740
Did you know that cereal comes
from the word Ceres,

3
00:00:07,740 --> 00:00:10,476
the Roman goddess of
agriculture and grain.

4
00:00:10,476 --> 00:00:12,211
Well, you may not
know that there's a

5
00:00:12,211 --> 00:00:15,081
distant solar system
world Ceres.

6
00:00:15,081 --> 00:00:17,250
It was discovered
200 years ago

7
00:00:17,250 --> 00:00:19,753
and it's had a sort
of identity crisis.

8
00:00:19,753 --> 00:00:21,421
It used to be
known as a planet

9
00:00:21,421 --> 00:00:24,323
and then an asteroid
and now a dwarf planet.

10
00:00:24,323 --> 00:00:26,358
Well, whatever
you call it,

11

00:00:26,358 --> 00:00:29,596
Dawn, with its xenon ion
propulsion system,

12
00:00:29,596 --> 00:00:32,465
is about to call it home.

13
00:00:32,465 --> 00:00:34,834
Dawn is truly an
historic mission.

14
00:00:34,834 --> 00:00:37,570
It's the first mission to orbit
a main belt asteroid.

15
00:00:37,570 --> 00:00:39,238
And, it's the first
mission to orbit

16
00:00:39,238 --> 00:00:41,240
two interplanetary bodies;

17
00:00:41,240 --> 00:00:45,277
two fossils from the very
beginning of our solar system

18
00:00:45,277 --> 00:00:46,913
and thus, it's
telling us part

19
00:00:46,913 --> 00:00:49,349
of the story of our
own beginnings.

20
00:00:49,349 --> 00:00:51,884
Dawn orbited Vesta
and spent 14 months

21
00:00:51,884 --> 00:00:54,454
exploring that

alien world.

22
00:00:54,454 --> 00:00:58,557
We saw a crater there
300 miles in diameter.

23
00:00:58,557 --> 00:01:00,626
And, in the center of that
crater there's a mountain

24
00:01:00,626 --> 00:01:04,030
that's two and a half times
the height of Mount Everest.

25
00:01:04,030 --> 00:01:06,499
It's very young. It
formed very hot.

26
00:01:06,499 --> 00:01:09,468
But we also found that
there was water on Vesta,

27
00:01:09,468 --> 00:01:13,006
and that water had to come
from somewhere else.

28
00:01:13,006 --> 00:01:14,940
And now we're on the
verge of exploring

29
00:01:14,940 --> 00:01:17,310
an even larger
alien world,

30
00:01:17,310 --> 00:01:18,811
Ceres.

31
00:01:18,811 --> 00:01:21,147
Thanks to Dawn's unique
ion propulsion system,

32
00:01:21,147 --> 00:01:23,682
it has a different way of going
into orbit around Ceres

33
00:01:23,682 --> 00:01:25,251
from what we're used to.

34
00:01:25,251 --> 00:01:27,754
It will slowly
creep up on Ceres

35
00:01:27,754 --> 00:01:30,322
and gently use its ion
propulsion system

36
00:01:30,322 --> 00:01:32,825
to gracefully slip
into orbit.

37
00:01:32,825 --> 00:01:35,061
Dawn is going to be
revealing to us

38
00:01:35,061 --> 00:01:38,431
this mysterious world that
for more than two centuries

39
00:01:38,431 --> 00:01:41,433
has just been a faint smudge of
light amidst the stars.

40
00:01:41,433 --> 00:01:43,336
We're now getting pictures
that are better

41
00:01:43,336 --> 00:01:46,272
than the best we'd
ever had before.

42
00:01:46,272 --> 00:01:48,874
The bright spot that's been
seen in the approach images

43
00:01:48,874 --> 00:01:51,677
is very interesting because
it's in the same region,

44
00:01:51,677 --> 00:01:53,646
where the Hershel
Space Observatory

45
00:01:53,646 --> 00:01:56,148
detected water vapor emission
from Ceres' surface.

46
00:01:56,148 --> 00:01:59,118
It's possible that
objects like Ceres

47
00:01:59,118 --> 00:02:01,821
brought water
to the Earth.

48
00:02:01,821 --> 00:02:05,225
It has a rocky core
and an ice mantle

49
00:02:05,225 --> 00:02:09,929
and in the past had an ocean
like Europa and Enceladus.

50
00:02:09,929 --> 00:02:12,898
Dawn carries a suite of
sophisticated instruments

51
00:02:12,898 --> 00:02:16,469
that will allow us to determine
not only what Ceres looks like

52
00:02:16,469 --> 00:02:19,972
but what it's made of and what
its interior structure is.

53
00:02:19,972 --> 00:02:23,509
So, we're going to learn about
the geology and the chemistry...

54
00:02:23,509 --> 00:02:25,912
...what minerals are on Ceres.

55
00:02:25,912 --> 00:02:28,247
All about the nature
of this world

56
00:02:28,247 --> 00:02:30,583
and it's like a
time capsule

57
00:02:30,583 --> 00:02:33,886
from the dawn of
the solar system.

58
00:02:33,886 --> 00:02:38,858
Dawn's legacy extends
beyond a good breakfast.

59
00:02:38,858 --> 00:02:41,927
And who knows what surprises
we're gonna find at Ceres?