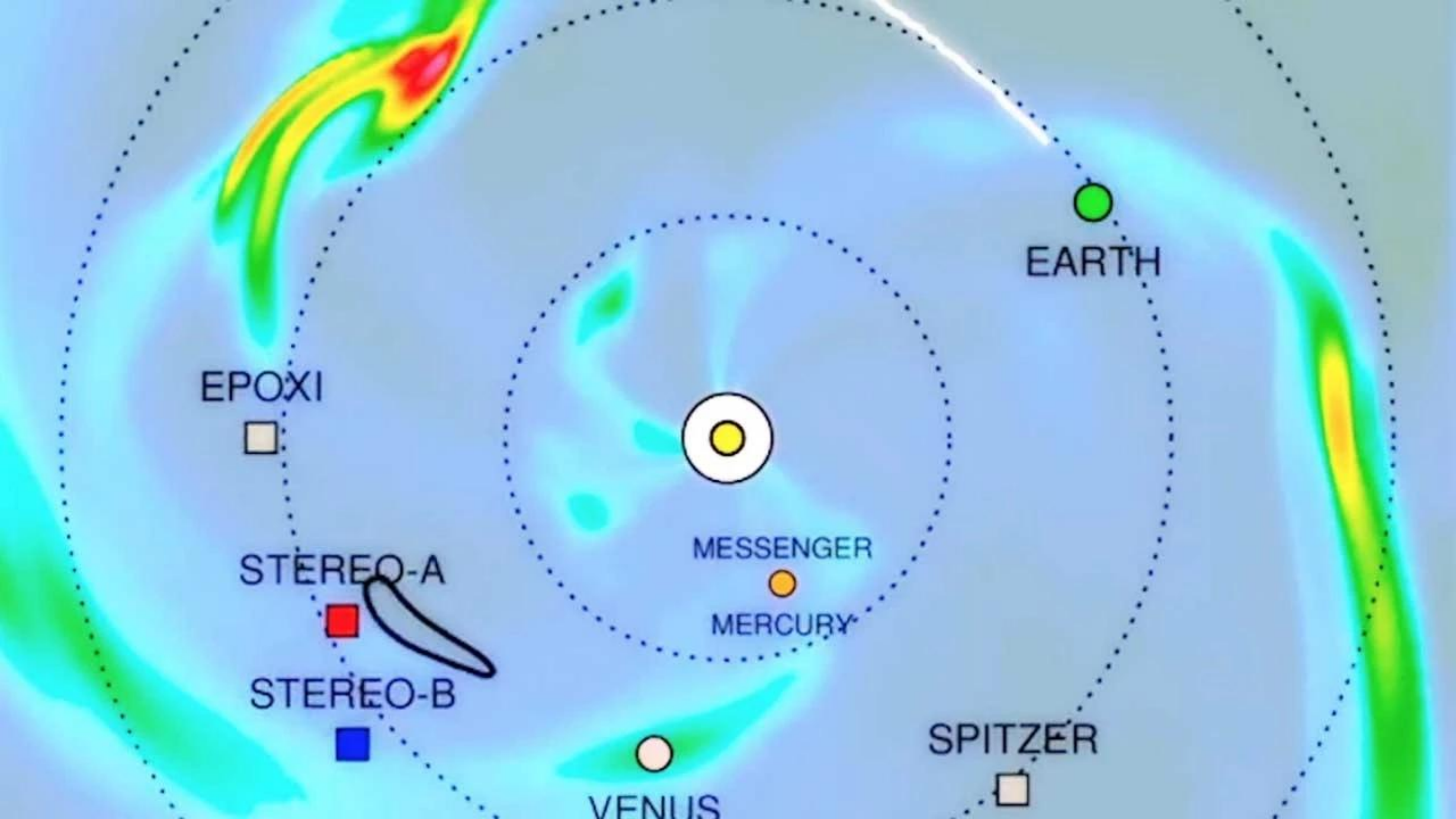
EARTH
EPOXI
MESSENGER
STEREO-A
MERCURY
STEREO-B
SPITZER
VENUS

1
00:00:07,829 --> 00:00:05,910
hi this is layla mays i'm a research

2
00:00:09,830 --> 00:00:07,839
scientist at goddard you are viewing a

3
00:00:13,110 --> 00:00:09,840
solar wind simulation called enlol from

4
00:00:15,270 --> 00:00:13,120
dr dushan astrazil you can think of this

5
00:00:16,870 --> 00:00:15,280
as a weather map for the solar system

6
00:00:18,230 --> 00:00:16,880
this simulation provides solar wind

7
00:00:20,870 --> 00:00:18,240
predictions at pluto for the new

8
00:00:22,630 --> 00:00:20,880
horizons flyby new horizons trajectory

9
00:00:25,269 --> 00:00:22,640
is the white line that you can see near

10
00:00:26,710 --> 00:00:25,279
the earth when it launched in 2006 and

11
00:00:29,669 --> 00:00:26,720
it has taken nine and a half years to

12
00:00:31,189 --> 00:00:29,679
reach pluto in 2015. the sun is at the

13
00:00:33,430 --> 00:00:31,199

center and we're viewing the plane of

14
00:00:35,430 --> 00:00:33,440
the planets from above as we're zooming

15
00:00:37,350 --> 00:00:35,440
out of the inner solar system the

16
00:00:39,430 --> 00:00:37,360
planets are labeled as circles and the

17
00:00:41,190 --> 00:00:39,440
spacecraft by squares

18
00:00:43,030 --> 00:00:41,200
the color is showing the density of

19
00:00:45,110 --> 00:00:43,040
particles in the solar wind which are

20
00:00:46,709 --> 00:00:45,120
always streaming out from the sun

21
00:00:48,869 --> 00:00:46,719
and near the earth the solar wind speed

22
00:00:50,150 --> 00:00:48,879
is about a million miles per hour and

23
00:00:51,990 --> 00:00:50,160
you can see that the solar wind

24
00:00:54,869 --> 00:00:52,000
structures maintain their shape at large

25
00:00:56,630 --> 00:00:54,879
distances the black outlines you see are

26
00:00:58,709 --> 00:00:56,640
coronal mass ejections from the sun

27
00:01:00,389 --> 00:00:58,719
which expand and elongate as they flow

28
00:01:02,549 --> 00:01:00,399
out you can see that they're being

29
00:01:04,229 --> 00:01:02,559
captured by the solar wind structures

30
00:01:05,990 --> 00:01:04,239
and merged to form global merged

31
00:01:07,910 --> 00:01:06,000
interaction regions which the new

32
00:01:09,910 --> 00:01:07,920
horizons spacecraft can observe as

33
00:01:11,429 --> 00:01:09,920
enhancements the coronal mass ejections

34
00:01:13,990 --> 00:01:11,439
can take about five months to reach

35
00:01:16,310 --> 00:01:14,000
pluto so this simulation began six

36
00:01:17,910 --> 00:01:16,320
months ago and includes information

37
00:01:19,830 --> 00:01:17,920
about over a hundred coronal mass

38
00:01:22,230 --> 00:01:19,840

ejections

39
00:01:24,390 --> 00:01:22,240
now we start to zoom in on pluto before