



1
00:00:00,400 --> 00:00:03,904
New NASA research indicates that
Saturn's iconic rings are not

2
00:00:03,904 --> 00:00:07,007
only younger than previously
thought, but also that these

3
00:00:07,007 --> 00:00:11,278
rings are actually disappearing
at an extremely fast pace. The

4
00:00:11,278 --> 00:00:13,814
research found that the rings
are draining away toward the

5
00:00:13,814 --> 00:00:17,885
planet as a dusty rain of ice
particles. Saturn's rings

6
00:00:17,885 --> 00:00:21,622
consist mostly of water ice that
ranges in size from microscopic

7
00:00:21,622 --> 00:00:25,225
dust to large boulders.
Ultraviolet light from the Sun

8
00:00:25,225 --> 00:00:28,161
and plasma clouds coming from
tiny meteoroid strikes charge

9
00:00:28,161 --> 00:00:32,132
the icy dust, which then becomes
bound to Saturn's magnetic field

10
00:00:32,132 --> 00:00:36,537
and pulled into the planet by
gravity. This material rains

11

00:00:36,537 --> 00:00:39,740

into the planet and begins to disintegrate, allowing it to

12

00:00:39,740 --> 00:00:42,609

react chemically with the electrically charged part of

13

00:00:42,609 --> 00:00:47,881

Saturn's upper atmosphere - the ionosphere. The ions glow in an

14

00:00:47,881 --> 00:00:51,051

infrared light as a part of this process if the rain is light,

15

00:00:51,051 --> 00:00:54,421

but the emissions dim if the rain is heavy. This was observed

16

00:00:54,421 --> 00:00:58,759

using instruments attached to the Keck telescope in Hawaii.

17

00:00:58,759 --> 00:01:01,495

The rate of disappearance in this ring rain study has allowed

18

00:01:01,495 --> 00:01:04,898

scientists to infer that Saturn's rings formed less than

19

00:01:04,898 --> 00:01:08,769

100 million years ago. This means Saturn wasn't born this

20

00:01:08,769 --> 00:01:13,273

way, as the planet is known to be over 4 billion years old. And

21

00:01:13,273 --> 00:01:15,976

when the ring rain data is
combined with observations made

22

00:01:15,976 --> 00:01:20,213

by the Voyager 1 and 2 missions,
scientists from NASA Goddard are

23

00:01:20,213 --> 00:01:23,717

able to estimate that the rings
will be gone in 300 million