



**RECORD BROKEN**  
**HUBBLE SPOTS FARTHEST STAR EVER**

1  
00:00:04,230 --> 00:00:02,389  
nasa's hubble space telescope has

2  
00:00:06,950 --> 00:00:04,240  
established an extraordinary new

3  
00:00:09,030 --> 00:00:06,960  
benchmark detecting the light of a star

4  
00:00:11,110 --> 00:00:09,040  
that existed within the first billion

5  
00:00:13,990 --> 00:00:11,120  
years after the universe's birth in the

6  
00:00:17,269 --> 00:00:14,000  
big bang the farthest individual star

7  
00:00:20,390 --> 00:00:17,279  
ever seen to date

8  
00:00:22,310 --> 00:00:20,400  
the newly detected star is 12.9 billion

9  
00:00:25,509 --> 00:00:22,320  
light years away meaning that the light

10  
00:00:27,509 --> 00:00:25,519  
took 12.9 billion years to reach earth

11  
00:00:30,550 --> 00:00:27,519  
the previous record was 9 billion light

12  
00:00:32,790 --> 00:00:30,560  
years away

13  
00:00:35,510 --> 00:00:32,800

normally at these distances entire

14

00:00:37,350 --> 00:00:35,520

galaxies look like small dim smudges

15

00:00:39,350 --> 00:00:37,360

with the light from millions of stars

16

00:00:41,670 --> 00:00:39,360

blending together

17

00:00:44,069 --> 00:00:41,680

but the galaxy hosting this star was

18

00:00:46,310 --> 00:00:44,079

magnified and distorted by gravitational

19

00:00:49,430 --> 00:00:46,320

lensing into a long crescent that

20

00:00:51,430 --> 00:00:49,440

astronomers named the sunrise arc

21

00:00:53,670 --> 00:00:51,440

gravitational lensing occurs when a

22

00:00:56,389 --> 00:00:53,680

tremendous mass warps the fabric of

23

00:00:58,630 --> 00:00:56,399

space creating a powerful natural

24

00:01:01,029 --> 00:00:58,640

magnifying glass that distorts and

25

00:01:03,029 --> 00:01:01,039

greatly amplifies the light from distant

26

00:01:05,350 --> 00:01:03,039

objects behind it

27

00:01:07,750 --> 00:01:05,360

the combined mass of a foreground group

28

00:01:11,030 --> 00:01:07,760

of galaxies created a lens that allowed

29

00:01:13,510 --> 00:01:11,040

astronomers to see this distant star

30

00:01:15,190 --> 00:01:13,520

after studying the galaxy in detail they

31

00:01:17,429 --> 00:01:15,200

determined that one feature is an

32

00:01:20,070 --> 00:01:17,439

extremely magnified star that they

33

00:01:22,789 --> 00:01:20,080

called arendelle which means morning

34

00:01:25,429 --> 00:01:22,799

star in old english

35

00:01:28,149 --> 00:01:25,439

the research team estimates that arundel

36

00:01:30,789 --> 00:01:28,159

is at least 50 times the mass of our sun

37

00:01:33,270 --> 00:01:30,799

and millions of times as bright rivaling

38

00:01:35,910 --> 00:01:33,280

the most massive stars known

39

00:01:37,670 --> 00:01:35,920

a red giant existed so long ago that it

40

00:01:41,270 --> 00:01:37,680

may not have had all the same raw

41

00:01:43,590 --> 00:01:41,280

materials as the stars around us today

42

00:01:45,350 --> 00:01:43,600

studying arundel will be a window into

43

00:01:47,510 --> 00:01:45,360

an era of the universe that we are