



1  
00:00:05,590 --> 00:00:03,270  
nasa's nicer x-ray telescope on the

2  
00:00:08,230 --> 00:00:05,600  
international space station has just

3  
00:00:10,230 --> 00:00:08,240  
shown that random outbursts from pulsars

4  
00:00:11,190 --> 00:00:10,240  
pack more of a punch than previously

5  
00:00:13,350 --> 00:00:11,200  
thought

6  
00:00:15,829 --> 00:00:13,360  
pulsars are rapidly spinning neutron

7  
00:00:16,870 --> 00:00:15,839  
stars the crushed cores of exploded

8  
00:00:19,109 --> 00:00:16,880  
stars

9  
00:00:21,510 --> 00:00:19,119  
one of the best-known pulsars lies at

10  
00:00:25,429 --> 00:00:21,520  
the heart of the famous crab nebula

11  
00:00:27,429 --> 00:00:25,439  
located about 6 500 light years away

12  
00:00:29,269 --> 00:00:27,439  
light from the supernova that formed it

13  
00:00:32,229 --> 00:00:29,279

reached earth less than a thousand years

14

00:00:35,110 --> 00:00:32,239

ago in the year 1054.

15

00:00:37,670 --> 00:00:35,120

the crab pulsar spins 30 times a second

16

00:00:41,190 --> 00:00:37,680

and steadily blinks in radio visible

17

00:00:44,150 --> 00:00:41,200

light x-rays and gamma rays but it also

18

00:00:46,389 --> 00:00:44,160

emits random jumbo bursts called giant

19

00:00:49,350 --> 00:00:46,399

radio pulses they can be more than 10

20

00:00:51,910 --> 00:00:49,360

times stronger than its regular signals

21

00:00:54,069 --> 00:00:51,920

now thanks to nicer's sensitivity

22

00:00:56,229 --> 00:00:54,079

astronomers have shown that each giant

23

00:00:57,670 --> 00:00:56,239

pulse comes with an increase in x-ray

24

00:00:59,830 --> 00:00:57,680

brightness as well

25

00:01:02,630 --> 00:00:59,840

observing the crabs simultaneously with

26

00:01:05,750 --> 00:01:02,640

nicer and radio telescopes in japan

27

00:01:09,030 --> 00:01:05,760

astronomers captured data over some 3.7

28

00:01:11,510 --> 00:01:09,040

million rotations they show a nearly 4

29

00:01:12,950 --> 00:01:11,520

increase in x-ray emission with each

30

00:01:15,190 --> 00:01:12,960

giant pulse

31

00:01:17,830 --> 00:01:15,200

this means the phenomena responsible for

32

00:01:20,390 --> 00:01:17,840

giant radio pulses produced 10 or more

33

00:01:23,030 --> 00:01:20,400

times the energy previously estimated

34

00:01:25,190 --> 00:01:23,040

from radio and visible data alone

35

00:01:27,190 --> 00:01:25,200

astronomers think all these signals

36

00:01:29,350 --> 00:01:27,200

originate from particle interactions in

37

00:01:31,670 --> 00:01:29,360

the pulsar's rapidly spinning magnetic

38

00:01:33,350 --> 00:01:31,680

field but the details remain poorly

39

00:01:35,910 --> 00:01:33,360

known

40

00:01:37,830 --> 00:01:35,920

better understanding of giant pulses

41

00:01:40,469 --> 00:01:37,840

may help scientists figure out how

42

00:01:42,789 --> 00:01:40,479

pulsars like the crab do what they do it

43

00:01:44,710 --> 00:01:42,799

may also provide us with insight into a

44

00:01:47,190 --> 00:01:44,720

much more powerful phenomenon called

45

00:01:49,990 --> 00:01:47,200

fast radio bursts which are linked to

46

00:01:55,800 --> 00:01:50,000

spinning neutron stars in our galaxy and