



1
00:00:16,160 --> 00:00:22,619
Visible light. The light you see with your eye. Reveals only one part of the

2
00:00:22,619 --> 00:00:27,990
universe. When clouds of gas and dust block the light emitted by distant

3
00:00:27,990 --> 00:00:31,440
objects
astronomers can explore by using

4
00:00:31,440 --> 00:00:36,989
radiation from elsewhere on the electromagnetic spectrum. In x-rays, radio

5
00:00:36,989 --> 00:00:42,839
and other wavelengths. The infrared is where the energy from many astronomical

6
00:00:42,839 --> 00:00:48,780
objects can be detected. In fact, star formation regions, centers of galaxies

7
00:00:48,780 --> 00:00:53,399
and other celestial phenomena whose visible light can't get through the dust

8
00:00:53,399 --> 00:00:59,339
and gas clouds surrounding them can only be studied in the infrared. Astronomers

9
00:00:59,339 --> 00:01:04,800
will soon have at their disposal NASA's Stratospheric Observatory for Infrared

10
00:01:04,800 --> 00:01:12,060
Astronomy. The biggest and most powerful airborne observatory in the world. SOFIA

11
00:01:12,060 --> 00:01:17,340
is a great addition to our suite of
great observatories. It adds infrared

12
00:01:17,340 --> 00:01:23,250
capability but, unlike Hubble and Chandra
SOFIA comes home every day. It is a 747

13
00:01:23,250 --> 00:01:29,729
plane in which we have put a two and a
half meter infrared telescope. We've

14
00:01:29,729 --> 00:01:34,049
configured it to have a door in the back
of the plane that we can open in flight

15
00:01:34,049 --> 00:01:39,990
to observe the universe. In the front of
SOFIA, scientists will conduct their

16
00:01:39,990 --> 00:01:43,880
astronomical observations in a
pressurized shirt sleeve environment.

17
00:01:43,880 --> 00:01:50,520
Behind the bulkhead SOFIA's 100 inch
diameter reflecting telescope will gaze

18
00:01:50,520 --> 00:01:57,090
out into the universe at some 35,000 to
45,000 feet above sea level. The highest

19
00:01:57,090 --> 00:02:01,500
a passenger aircraft can fly. The
important part of SOFIA is that it flies

20
00:02:01,500 --> 00:02:06,810
above 99.99% of all the water in the
Earth's atmosphere

21
00:02:06,810 --> 00:02:12,120
so we can observe the infrared universe
without being blocked by the Earth's atmosphere.

22
00:02:12,120 --> 00:02:17,790
When it becomes operational
and 2010, SOFIA will fly out of NASA's

23
00:02:17,790 --> 00:02:22,980
Dryden Aircraft Operations Center about
100 nights a year. During its expected

24
00:02:22,980 --> 00:02:27,650
20-year lifetime
SOFIA will make great observatory class

25
00:02:27,650 --> 00:02:32,970
astronomical science by seeing the
heavens in a different light. We'll be

26
00:02:32,970 --> 00:02:37,739
able to study how the molecules come
together to form stars and planets. We'll

27
00:02:37,739 --> 00:02:42,840
be able to study the process of water
and other prebiotic molecules as it's

28
00:02:42,840 --> 00:02:46,769
created in stellar systems and then is
propagated throughout the galaxy.

29
00:02:46,769 --> 00:02:51,209
We will be able to study the energetics and the
Quasars and the blackhole engines at the

30
00:02:51,209 --> 00:02:58,670
centers of galaxies outside of our own.
For more on SOFIA log on to www.nasa.gov

