1
00:00:01,400 --> 00:00:07,070
Let’s say this is the equivalent of the sun’s total energy output.

2
00:00:07,090 --> 00:00:12,230
You can accumulate a hundred dollars a lot of different ways…

3
00:00:12,250 --> 00:00:13,830
But a hundred bucks…

4
00:00:13,850 --> 00:00:15,579
…is a hundred bucks!

5
00:00:15,580 --> 00:00:18,770
If energy from the sun were a hundred dollars,

6
00:00:18,790 --> 00:00:22,530
it would be important to know what kinds of currency was coming in—

7
00:00:22,550 --> 00:00:23,810
big groups of pennies …

8
00:00:23,830 --> 00:00:25,290
…whole dollar bills…

9
00:00:25,310 --> 00:00:27,820
…or combinations.

10
00:00:27,840 --> 00:00:30,580
The total amount of solar energy falling on Earth

11
00:00:30,600 --> 00:00:34,880
generally doesn’t vary more than about 1 dime to $100

12
00:00:34,900 --> 00:00:39,390
but the kinds of energy from the Sun can fluctuate.

13
00:00:39,410 --> 00:00:42,190

Remember that light we see with our eyes

14
00:00:42,210 --> 00:47:59,890
is actually a combination of many different colors, or wavelengths.

15
00:47:59,910 --> 00:00:49,630
That’s true also for the light we do NOT see.

16
00:00:49,650 --> 00:00:53,290
The composition of that light matters to understanding Earth’s energy budget,

17
00:00:53,310 --> 00:00:59,770
and that’s the reason NASA has a new instrument designed to study this question.

18
00:00:59,790 --> 00:01:00,510
It’s called TSIS—

19
00:01:00,530 --> 00:01:06,820
—the Total and Spectral Solar Irradiance Sensor.

20
00:01:06,840 --> 00:01:08,550
It is important to know that the Sun supplies

21
00:01:08,570 --> 00:01:11,910
virtually all of the energy coming to Earth.

22
00:01:11,930 --> 00:01:15,880
But...inbetween the Earth and the Sun

23
00:01:15,900 --> 00:01:16,320
there is the atmosphere.

24
00:01:16,340 --> 00:01:19,920
In the atmosphere there are clouds, there are aerosols--

25
00:01:19,940 --> 00:01:24,879
that is particles--there are gasses

26
00:01:24,880 --> 00:01:26,810
that interefere with solar radiation reaching Earth.

27
00:01:26,830 --> 00:01:27,170
So, that's why we need to fly a satellite....

28
00:01:27,190 --> 00:01:28,510
to be above the atmosphere

29
00:01:28,530 --> 00:01:31,970
Mounted to the International Space Station,

30
00:01:31,990 --> 00:01:35,220
TSIS will collect detailed assessments of solar energy.

31
00:01:35,240 --> 00:01:38,340
Those data will be vital for scientists