
NORTH DAKOTA
MINNESOTA
SOUTH DAKOTA
WISCONSIN
MICHIGAN
NEBRASKA
IOWA
NEW YORK
PENNSYLVANIA
ILLINOIS
INDIANA
OHIO
KANSAS
MISSOURI
WEST VIRGINIA
VIRGINIA
KENTUCKY
TENNESSEE
NORTH CAROLINA
OKLAHOMA
ARKANSAS
SOUTH CAROLINA
MISSISSIPPI
ALABAMA
GEORGIA
TEXAS
LOUISIANA
FLORIDA

1
00:00:00,000 --> 00:00:05,840
[Chimes]

2
00:00:07,380 --> 00:00:16,180
Soybeans, wheat, sugarbeets, corn. Nebraska is one of the biggest agricultural producers in the UNited States

3
00:00:16,180 --> 00:00:25,280
Field to field, crop to crop, every farmer uses a different amount of water. How do we keep track of such divers

4
00:00:25,280 --> 00:00:43,000
The Landsat satellites gives us the ability to see individual fields. We can see what they are growing in each fie

5
00:00:43,000 --> 00:00:51,020
So that it's a great satellite that gives us so much information about our planet

6
00:00:53,120 --> 00:01:01,540
we use what we call surface energy balance. We know the amount of energy coming in from sunlight. Some of

7
00:01:01,540 --> 00:01:08,760
released as heat and measured by Landsat's infrared sensors. At the same time

8
00:01:09,100 --> 00:01:15,440
water from transpiration cools the surface, lowering the temperature of the fields

9
00:01:15,640 --> 00:01:19,700
and limiting the amount of heat seen by the thermal sensors.

10
00:01:19,900 --> 00:01:23,800
And we solve the energy balance for all these

11
00:01:23,800 --> 00:01:29,520
components. The energy balance then yields the ET which is the water that was consumed.

12
00:01:29,660 --> 00:01:50,900
We receive a monthly data set of metric ET data so we've got for May, June, July, August, September, we are

13
00:01:52,020 --> 00:01:57,080

Let's take an aerial view of this. Landsat

14
00:01:57,080 --> 00:02:01,180
measures the health of individual plants and the temperature of the land

15
00:02:04,160 --> 00:02:13,280
as we move into summer temperatures increase. Irrigated fields look cool because water evaporates from the s

16
00:02:13,280 --> 00:02:20,720
plants. You can see ET peak midway through the growing season when corn needs the most water.

17
00:02:22,280 --> 00:02:29,640
By tracking monthly ET resource managers know how much water each field has used. The Central Platte

18
00:02:29,640 --> 00:02:34,220
Natural Resources District uses these measurements to plan their water budget.

19
00:02:34,620 --> 00:02:45,580
We need to maintain a balanced groundwater aquifer system. We don't want to deplete it. We don't want to ove

20
00:02:45,580 --> 00:02:53,260
but, yeah, that's our goal. It's to maintain the large amount of irrigation we have here in the valley.

21
00:02:53,260 --> 00:02:57,040
and being able to do that on a sustainable basis.

22
00:02:58,620 --> 00:03:08,340
Metric, the system used to develop ET, was developed in the early 2000s. Today it's being used by 15 states a

23
00:03:08,340 --> 00:03:18,160
Water is important in this region and having this data now really helps us to use that water wisely.