EARTHQUAKE:

JOAN CARTAN-HANSEN, REPORTER: IT'S GAME NIGHT FOR THE BOISE STATE UNIVERSITY FOOTBALL TEAM. AND THE AREA AROUND THE STADIUM IS FILLED WITH TAILGATERS. FOR THESE FANS, IT'S ALL ABOUT THE PIZZA, THE FOOTBALL, AND THE SCIENCE. FOR SEVERAL YEARS THE BOISE STATE GEOSCIENCES DEPARTMENT HAS TRACKED HOW BSU FANS SHAKE THE GROUND DURING A GAME.

JEFFREY JOHNSON, BOISE STATE UNIVERSITY: WHAT WE'RE OBSERVING HERE IS EFFECTIVELY THE SAME THING THAT WE OBSERVE WHEN WE RECORD NORMAL EARTHQUAKES. THERE IS A SOURCE THAT PUSHES ON THE GROUND AND THEN THAT ENERGY HAS TO TRAVEL THROUGH THE GROUND IN THE FORM OF SEISMIC WAVES.

CARTAN-HANSEN: JOHNSON USES THESE LAB SESSIONS TO SHOW STUDENTS HOW SEISMOGRAPHS WORK.

JOHNSON: BASICALLY WHAT HAPPENS IS ANY TIME THE EARTH SHAKES, THE SEISMOMETER CAN POTENTIALLY PICK IT UP. IT CAN CONVERTS GROUND MOTIONS INTO SMALL VOLTAGES THAT TRAVEL ALONG THE COIL. YOU CAN SEE THIS COIL OF COPPER WIRE RIGHT HERE. IT CREATES -- IT INDUCES AS CURRENT IN THAT COIL BECAUSE THERE IS A MAGNET INSIDE THAT IS SUSPENDED UPON A SPRING, WHEN THE GROUND MOVES, THAT MAGNET GOES UP AND DOWN, CAUSES A CURRENT, COMES UP AS THIS WIRE RIGHT HERE, AND WE MEASURE THAT AS A VOLTAGE, AND THAT GOES INTO OUR COMPUTER. RIGHT NOW, WE'RE LISTENING TO THE EARTHQUAKES FROM BRONCO STADIUM, RIGHT.

STUDENT: YEAH.

JOHNSON: BRONCO STADIUM IS PRODUCING TINY LITTLE EARTHQUAKES AS PEOPLE ARE CHEERING ON THE FOOTBALL TEAM.

STUDENT: OKAY

JOHNSON: BUT, BECAUSE WE'RE SO CLOSE TO THE SOURCE OF THOSE MICROEARTHQUAKES, THEY SHOW UP ON OUR MONITOR. I CAN SEE IT RIGHT THERE. THAT'S THE CROWD GETTING ALL EXCITED ABOUT KICK-OFF.

(CROWD CHEERING)

JOHNSON: THERE IS THE START. EVERYONE IS ROARING.

(CROWD CHEERS)

JOHNSON: THEY ARE SHAKING THE STADIUM. WE ARE GETTING THE SEISMIC WAVES

(STAUDIM NOISE)

(CANNON)

JOHNSON: OH, THERE WE GO. RIGHT THERE. THERE IS SOME ACTIVITY FROM THE BOISE STATE BRONCOS' FANS. THIS IS A NON CONVENTIONAL STUDY. USUALLY WE USE SEISMOMETERS TO RECORD REAL EARTHQUAKES, AND WE ARE LISTENING TO HUMAN EARTHQUAKES.

CARTAN-HANSEN: AND WHAT DID THE DATA TELL THESE SCIENTISTS? SOMETHING SIMILAR TO WHAT THEY HAVE LEARNED IN PAST YEARS.

JOHNSON: A STUDY THAT WAS DONE IN 2009 ACTUALLY OBSERVED THE LEVEL OF SEISMIC NOISE DECREASED OVER THE COURSE OF THE FOOTBALL GAME. THE FIRST HALF WAS A LOT MORE ENERGETIC. MAYBE PEOPLE WERE LESS TIRED. THE SECOND HALF, PERHAPS, PEOPLE

WERE TIRED OR EVEN LEFT THE STADIUM.

CARTAN-HANSEN: JOHNSON SAYS THE STUDY ALSO SHOWS THAT THERE IS MORE THAN ONE KIND OF EARTHQUAKE.

JOHNSON: YOU CAN GET A TRADITIONAL EARTHQUAKE, SUCH AS FAULT RUPTURING ROCK. THAT'S WHAT WE CALL A TECTONIC EARTHQUAKE. YOU CAN GET AN EARTHQUAKE FROM A VOLCANO ERUPTING OR FROM A LANDSLIDE. OR IN THIS CASE, WE HAVE LITTLE EARTHQUAKES PRODUCED BY PEOPLE WHO ARE YELLING AND SCREAMING AND STOMPING THEIR FEET.

CARTAN HANSEN: IF YOU WANT TO SEE A SEISMOGRAPH IN ACTION IN REAL-TIME, CHECK OUT THE LINKS ON MY BLOG.

YOU WILL FIND IT AT IDAHOPTV.ORG/SCIENCETREK. THANKS FOR JOINING US FOR THIS SCIENCE TREK ON LOCATION.

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