Sun--Eclipse

(Music)

JOAN CARTAN-HANSEN, HOST:

HI, I’M JOAN CARTAN-HANSEN AND WELCOME TO SCIENCE TREK. And welcome to STANLEY IDAHO. We are heRE for a TOTAL SOLAR ECLIPSE of the sun.

SO Let me introduce my helpers. This is HARRISON, AND Kenny and BEHIND THE SUN is Samantha.

OKAY SO WE KNOW THAT THE EARTH REVOLVES AROUND THE SUN AND THAT THE MOON REVOLVES AROUND THE EARTH.

AND WHEN THEY GET IN A LINE LIKE THIS THE MOON CASTS A SHADOW ON THE EARTH AND THAT’S CALLED THE UMBRA. AND IF YOU ARE IN THAT SHADOW THAT’S WHEN YOU SEE A TOTAL SOLAR ECLIPSE.

AND THIS ALL HAPPENS BECAUSE OF A BEAUTIFUL SYMMETRY.

THE SUN IS 400 TIMES LARGER THAN THE MOON BUT THE MOON IS 400 TIMES CLOSER TO THE EARTH, SO THE TWO BODIES APPEAR THE SAME SIZE IN THE SKY.

SO WHEN THEY ARE IN THE RIGHT POSTION AND YOU ARE IN THE RIGHT SPOT, YOU GET A TOTAL ECLIPSE.

AND JOINING US NOW IS KATHERINE DEVINE SHE IS AN ASSOCIATE PROFESSOR OF PHYSICS AT THE COLLEGE OF IDAHO.

Now tell us WHY IS this eclipse so special?

Katherine devine: well one of the things that makes this eclipse so special is that it traveled from coast to coast IN the united states. SO THAT’S THE FIRST TIME WE HAVE AN ECLIPSE TRACK ACROSS THE WHOLE US IN ALMOST A HUNDRED YEARS.

CARTAN-HANSEN: OKAY SO WE ARE READY FOR THE TOTAL SOLAR ECLIPSE. NOW WE’VE GOT OUR GLASSES. NOW THESE ARE SPECIAL GLASSES WITH FILTERS IN THEM. NOW YOU HAVE TO USE THEM WHEN YOU ARE LOOKING AT THE SUN OTHERWISE YOU CAN DAMAGE YOUR EYES.

SO WE ARE READY TO GO. OH, WAIT A MINUTE…

This is going to take some time so we are going to speed up the video a little.

DEVINE: FOR PEOPLE THAT ARE IN THE TOTAL SOLAR ECLIPSE PATH WHAT YOU’LL SEE IS THAT THE SUN WILL START TO HAVE A DENT TAKEN OUT OF IT. AND SO THAT THE MOON’S SHADOW WILL MOVE PROGRESSILY ACROSS THE SURFACE OF THE SUN. AND SO THAT TAKES ABOUT AN HOUR. AND THEN TOWARDS THE VERY END THE MOON WILL ALMOST BE COVERING THE SUN AND YOU’LL GET JUST THIS SLIVER OF SUNLIGHT. AND THEN AS THE MOON MOVES FURTHER AND FURTHER YOU’LL SEE THESE BEADS OF LIGHT. SO THAT THE BEADS ARE ACUTUALLY THE SUNLIGHT TRAVELING THROUGH THE VALLEYS AND MOUNTAINS ON THE SURFACE OF THE MOON. AND THEN YOU’LL SEE WHAT IS CALLED THE DIAMOND RING. SO THE MOON IS ALMOST COMPLETELY COVERING THE SUN AND YOU’LL GET THIS DIAMOND RING OF LIGHT. AND THERE IS JUST LIKE BOOM, DARKNESS.

CARTAN-HANSEN: OKAY WE ARE AT TOTALITY. THIS IS AWESOME! IT’S DARK, THE TEMPERATURE IS DROPPING. IT’S REALLY COOL!

DEVINE: AND SO YOU’LL SEE THE SUN’S ATMOSPHERE, THE CORONA SHINING BRIGHTLY OUT BEHIND THE SHADOW OF THE MOON IN FRONT OF THE SUN. AND IF YOU ARE REALLY LUCKY, YOU’LL SEE ON THE VERY SURFACE THE CHROMOSPHERE, SO YOU CAN EVEN LOOK FOR LITTLE BITS OF RED FROM THE CHROMOSPHERE OF THE SUN AS WELL.

So people that are interested in the atmosphere of the sun use total solar eclipses TO STUDY WHAT’S GOING ON IN THE SUN’S ATMOSPHERE.

BECAUSE They can get data from the corona without being overwhelmed by the sunlight.

IT’S RARE. IT’S NOT SOMETHING THAT VERY MANY PEOPLE GET TO EXPERIENCE. The last total eclipse to hit the mainland u.s. was in 1979. So even though solar eclipses touch some part of the earth’s surface a couple of times a year, THAT BAND OF TOTALITY WHERE THAT TOTAL ECLIPSE IS IS actually very very narrow and so to be located where that TOTAL eclipse is IS not something most people get to experience in their entire lives.

CARTAN-HANSEN: AH, THAT’S IT.

IN CASED YOU MISSED IT THE NEXT TOTAL SOLAR ECLIPSE ON A LITTLE BIT OF THE CONTENTIAL UNITED STATES WILL BE IN 2024.

NOW FOR MORE INFORMATION ABOUT THE SUN AND OTHER SCIENCE TOPICS, CHECK OUT THE SCIENCE TREK WEBSITE AT IDAHOPTV.ORG/ SCIENCE TREK

THANKS FOR JOINING US FOR SCIENCE TREK.

(music)

Narrator: Presentation of Science Trek on Idaho Public Television is made possible through the generous support of the Laura Moore Cunningham Foundation, committed to fulfilling the Moore and Bettis Family legacy of building the great state of Idaho; by the Idaho National Laboratory, mentoring talent and finding solutions for energy and security challenges; by the Friends of Idaho Public Television; and by the Corporation for Public Broadcasting.