



Teek and Tom Explore Planet Earth Episode 3: Weather and Climate EXTREMES!

TRANSCRIPT

Teek

Hi, I'm Teek. I live on planet Queloz. For my final class project my teacher said:

Teacher Puna

Find a planet in this galaxy and explain how its atmosphere works.

Teek

So with my trusty spaceship BARY...

BARY

That's me!

Teek

I headed to Earth. That's where I met NOAA scientist Tom.

Real Tom

You've come to the right person.

Teek

Now, he's showing me how awesome Earth is.

Cartoon Tom

It's so beautiful.

Teek

I can't wait to learn more. Let's go!

Teacher Pika

Alright, class. We have one more planet to learn about. Teek, take it away.

Teek

It's AMAZING, they call the planet Earth and about 70% of it is covered by a watery ocean that impacts its weather and climate. Seems like they should call it Planet Ocean! And there are these things called s'mores that are sooooo delicious. Oh, and they still burn fossil fuels causing their climate to change. But there's a whole Earth-wide group of Earthlings trying to fix it and...

Teacher Puna

[interrupting] Whoa slow down Teek! Ha ha ha ha ha ha. Don't give away all of Earth's secrets yet!

Teacher Pika

It sounds like you're learning a lot! What's next?

Teek

Oh! Earth scientist creature, Tom Di Liberto, is going to teach me how Earth's ocean affects extreme weather and climate.

Teachers Pika and Puna

Ooh, is that a hurricane you're flying through?

Teacher Puna

You're lucky, you little intergalactic traveler. Hoo hoo ha ha ha ha he he.

Teacher Pika

Keep up the good work! Next with an update is Twilerp.

Twilerp

Hi class. I'm in the deep ocean of Planet Wolszczan! Behind me is a hydrothermal vent where I've been encountering all kinds of surprising li—whoa!

Cartoon Tom

Oh no, what happened to Twilerp?

Teek

Oh, don't worry. This is like the fifth time this year that's happened to Twilerp!

Cartoon Tom

Oh, phew! Okay, let's see what a hurricane looks like from space!

Cartoon Tom

Ahh, just look at it, Teek...isn't it beautiful?

Teek

YES...and very marshmallowyyyy. Mmmmm.

Cartoon Tom

Huh? Teek, I'm talking about the Earth! See that big swirly cloud thingie right there? That's a hurricane! It's one of those extreme weather and climate events I was talking about—along with thunderstorms, droughts, and floods and a major contributor to all of that is...

Teek

Your ocean?

Cartoon Tom

You got it! Teek, do you remember the difference between weather and climate?

Teek

Yeah! Weather is what's happening outside right now. Climate is all of that weather averaged together over a long time.

Cartoon Tom

Yup! And the ocean affects both. Let me explain: hurricanes, typhoons, and tropical cyclones are different names for the same incredibly destructive storms that pop up across the tropics. And one thing they really like...warm ocean water. If hurricanes were a vehicle like a car...

Teek

Or a spaceship, like BARY!

Cartoon Tom

They'd be using pure warm ocean water for fuel.

BARY

As do I! When I feel low on battery reserves, I simply siphon ocean water! It's my energy drink! EXTREME!

Cartoon Tom

And the warmer the ocean, the more fuel to become torrential rain. And that warm water is mainly here, near the equator.

Teek

Oh, because the middle of your planet receives the most energy from the sun, so it's the warmest. Just like Queloz!

Cartoon Tom

Exactly! The patterns of that warm water determine where those storms form. The ocean is key.

Teek

But what's the difference between weather and climate extremes?

Cartoon Tom

One hurricane, thunderstorm, or flood is a weather extreme. A climate extreme would be way more or way less rain than normal during the entire year or season. And that can also be thanks to...

Teek

My favorite, the ocean!

Cartoon Tom

Haha, yes! Let's take a look at the Pacific Ocean now. Check out this really long ribbon of clouds, like a huge "river" of water moving through the sky. These atmospheric rivers draw up moisture from the warm tropical ocean and transport it hundreds and hundreds of miles away.

Teek

COOL! Can we take a boat down these sky rivers?

BARY

Unlikely. Humans have yet to conquer the art of boating in the clouds!

Teek

How do these rivers know where to flow?

Cartoon Tom

These rivers are funneled between a low pressure system to the north and a high pressure system to the south. Then the whole storm is being driven around by fast moving winds, 40,000 feet up in the atmosphere—about as high as airplanes fly. We call that the jet stream, steering the atmospheric rivers and storms like cars down a highway.

BARY

A jet stream has been identified over Earth's Pacific Ocean.

Cartoon Tom

And the ocean can even affect the path of the jet stream!

Teek

But isn't the jet stream realllyyy far above the ocean?

Cartoon Tom

It's bonkers, right?! The tropical ocean affects the tropical atmosphere through all that water for thunderstorms. And the tropical atmosphere can nudge where the jet stream goes, especially over the Pacific Ocean.

BARY

In this occurrence, the atmospheric rivers have been pushed into the Western Coast of North America causing rain, snow, floods, and landslides.

Cartoon Tom

Notice the places where those storms aren't going. It's dry. Whoa! Whoa! Wooooaaauh!

Teek

So one of these atmospheric rivers would be a weather extreme, but the back-to-back-to-back-to-back-to-back-to-back atmospheric rivers altogether are a climate extreme?

Cartoon Tom

Bingo! And that's how the ocean can affect climate extremes. I told you. The ocean is key!

Teek

These extremes seem really hard to forecast.

Cartoon Tom

They are! And climate change is making it harder, with a warmer planet leading to stronger hurricanes, heavier rain, and drier droughts. It's a really big problem that we need to solve fast. Good news is that there's already a lot of Earthlings working on it, that's for sure. Problems are easier to solve together!

Teek

That's right! As they say on Queloz, when handed a blorfsnarf, get together with your friends and make blorfsnarf bisque.

Cartoon Tom

Sounds good. Ha ha. And NOAA scientists are using some amazing technology to observe our blue planet, and that includes our ocean.

Teek

Ah hah! We were taught wayyyyyyy long ago that we needed a whole team of instruments to monitor our planet, like a mechanical science squad.

Cartoon Tom

Wow, Teek! That's incredible! We have some pretty cool instruments too...Uh oh. It looks like you'll have to wait until our next meeting to find out more!

Teek

Aww geez! I gotta go and I can't wait [chewing].

Cartoon Tom

Where did you get that s'more??

Teek

[chewing] What s'more?

BARY

Alert Teek, Accessing Student Log. Day 3: Final Project

Teek

Oh, woah! Almost forgot. Thanks BARY! Day 3: Final Project. Today scientist Tom talked about all sorts of extreme weather and climate. First, we looked at hurricanes. They use warm ocean water for fuel to get so extreme. Then, Tom showed me that the ocean even can affect where the jet stream, Earth's storm highway, is located. Which means some places get lots of storms, and other places get lots of nothing.

BARY

Humans are also changing Earth's climate. It is a less than optimal situation, but they can fix that.

Teek

Yup! And I really can't wait to see all that cool Earth technology that Tom mentioned. Aww, that reminds me. Time to build that strogrewt for my pluremian class.

Teek

Aww, no. Whee! Haha.

Real Tom

Whoaaaaa! Whoaaaaa! Ahhhh!

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