

Barrow IHY podcast 3 transcript

(Titles and music)

“EARTH’S POLES AS ANALOGS TO OTHER ICY WORLDS”

(Blowing wind)

JOHN COOPER

The real purpose of this meeting, from my perspective, because I do work in planetary science is to connect the legacy of the International Polar Year, which is going on now, and the International Heliophysical Year, to the future exploration of the solar system. And perhaps in the next 50 years, to what we might call, the “International Planetary Year.” And so an environment like this is a model, potentially, for some of the places that we are going to end up exploring with people, and ultimately we’d like to learn how to live there.

DALE CRUIKSHANK

My name is Dale Cruikshank, and I’m an astronomer at NASA’S Ames Research Center, where I study the planets, and in particular the outer planets of the icy, cold reaches of the solar system. This is a unique experience, because the ice is such a profound component of the local landscape and the local culture that it makes it a very interesting and special place to visit.

So I came to Barrow, Alaska, in part to talk about my work, but to also to get some kind of a closer feel for what it might be like to be on a truly frigid, cold, barren world.

(Wind, music)

Pluto is a very small, distant object, distant both from the Earth and the Sun. And because it’s so far away from the Sun, it doesn’t get very much energy – only about one thousandth of what we get. It is a dismal, lonely, frozen, polar world, the likes of which probably exists elsewhere in the region beyond Neptune, but we’re on our way to Pluto to see it up close, first-hand.

The icy regions of our planet have an enormous variety of structures and forms, some of which we think we see on other icy regions of other planets, and other icy moons, elsewhere in the solar system – possibly even on Pluto, when we get a good close-up look in 2015 with the “New Horizons” spacecraft on its way. So there’s a lot to learn, I think, from studying the ice, both on the sea and on the land on Planet Earth, primarily in the Arctic and Antarctic regions, that we will be able to apply directly to our studies of other icy bodies of the solar system.

(Music)

(Snow machine sounds)

MICHAEL DONOVAN

We're right off-shore of Point Barrow, about half a mile out from the beach. But you can see how all this ice is formed. When it is starting to freeze, ya know, all the ice gets blown out and then when it comes back in, it all just comes in and starts hitting shallow and just starts building up. But, yeah, pretty awesome.

KEVIN HAND

We're basically on rock, right now, OK? When liquid water crystallizes into ice, it is legitimately a mineral, and therefore also rock. And this is what most of the rocks in the outer solar system look like, just chunks of ice. And look how dirty this is, alright, pretty remarkable. But those specks – part of that's dirt – but part of that is also microbes, are also microbes that are just sort of hanging out for the winter, but there's life in this here icy rock. And this is part of what we find really intriguing when we look at these extreme environments on Earth and try and think about whether or not there could be little microbes in the ice on the polar caps of Mars, or what that ocean-ice interface might be like on Europa. What I find fascinating is that essentially as you decrease the amount of energy from the Sun, life takes on new adaptive strategies, and that's one of the things that we've learned about these life forms here, trapped in the ice.

(Music)

(Robot crunches over snow on tracks)

MIKE COMBERIATE

Oh, man, we've got a little Mars rover test-bed for our Mars avionics computing systems for robotic exploration, on this little test-bed here. We're running a little cold test out in Barrow, Alaska. It's only 28 below here, but it would be – probably – about closer to 160 below on Mars.

(Laughs)

“Got any more pocket warmers for the laptop?”

The remoteness of it is also important because of the communications, the connectivity, the long-haul connectivity, so we're testing that as well as just the basic cold.

Just going to scan the area like we'd do on Mars, get a depth of field map, and that would be what the operator back on Earth uses to navigate around craters and things, OK. So that's what we'll do: we'll take a picture here and send it back to Earth.

(Music and wind)

GLENN SHEEHAN

In Barrow, we've got half the people at this IHY meeting out in schools, out in the community, and even in other villages meeting with students and the community. And

part of it, of course, is to let people know what's happening right now, what are the scientists up to. Part of it is to try to fire up that next generation.

DALE CRUIKSHANK

I think these big international efforts that are mounted to make... International Polar Years and International Heliophysics Years, and of course the original IGY are extremely valuable in coordinating international efforts with scientists of a variety of backgrounds, talents, areas of emphasis, and resources, that make the whole much greater than just the sum of the parts. And it's an enormous privilege to be any small part of these big international efforts which, have traditionally yielded enormous new insight and information about the Earth, its relationship to the Sun, its place in the solar system, and all of the nature of Earth-Sun interactions in general.

(Music)

End titles