

National Aeronautics and Space Administration



COSMIC CONNECTIONS & ARCTIC TRADITIONS

A Journey of Indigenous Knowledge, Scientific Inquiry, Imagination and Hope



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ICE, CLOUD, AND LAND ELEVATION SATELLITE-2

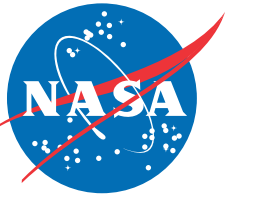
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Written and Illustrated by
Shawnell McFarlane





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Together we are stewards of Mother Earth

Dedication

This book is dedicated to my family, my elders, and the tribal youth who inspire me every day. It is also a tribute to my tribes, Squaxin Island and Skokomish, and all Indigenous communities. My cultural identity and connections have guided every step of my journey. Conversations with elders has gifted me sacred ancestral knowledge passed down for generations, while engaging with youth has filled me with hope and purpose, knowing they hold the future in their hands.

I also want to dedicate this book to every curious kid, Indigenous or not, who looks at the world with wonder and questions how it all works. Curiosity is where learning begins, and you are the dreamers and problem-solvers of tomorrow. I hope to show the next generation that their knowledge and perspectives are not only valuable but essential for solving global challenges.

Thank you to the NASA Goddard Space Flight Center Internship Program and the ICESat-2 mission for creating opportunities to merge Western science with Indigenous knowledge. This work was made possible through the support of the Minority University Research and Education Project (MUREP), which opens doors for Tribal students in STEM fields. To every Tribal student in these programs who feels like their dreams are out of reach, this is for you. Your journey matters and the impossible can become possible!

—Shawnell McFarlane

Foreward by the Author

Storytelling is at the heart of Indigenous knowledge. For us, stories are not myths or legends; they are truths woven into the rhythms of life and the universe. They carry timeless knowledge and remind us of our sacred responsibility to care for the natural world.

Indigenous knowledge is rooted in the understanding that everything, living and non-living, is interconnected. We see the universe as a web where all things are connected, and each part influences the others in ways both seen and unseen. Engaging with the natural world through all our senses strengthens these connections and reminds us that we are not separate from it but part of it.

This understanding is what we call reciprocity and stewardship. It teaches us to treat the land, water, and sky as equals. When our planet gives to us, we are called to give back in return. Reciprocity is not just a practice; it is a way of life that honors the delicate balance and interconnectedness of all living things.

This book offers a glimpse into how we, as Indigenous people, approach science and the world. It invites readers to recognize the extraordinary connections that surround us and to embrace the wisdom that comes from combining traditional knowledge with modern scientific exploration. I hope that it inspires readers of all ages to nurture their curiosity and imagine the world not just as it is, but as it could be.

“Our beliefs, our traditions, and our strength come from our yályəlab. We obtain indigenous knowledge and for that we are unique. We are destined to retain our sovereignty. This is our indigenous land. With feathers in your hair, woven cedar hats, Pendleton coats, and moccasins, STAND TALL. Say to yourself, “WE ARE STILL HERE. We are a living and breathing example of the struggle for survival. Together we are resilient.”

—Shawnell McFarlane



Our story starts with a very concerned, curious 12 year old native girl from Alaska. Her name is Shawnene. She lives with her family and is the oldest child.

Shawnene is confused as to why the ice around her is melting faster than usual.



She notices her igloo is starting to melt, and when her father takes her scouting for whales, there are parts of the sea ice that are too thin to walk on. There are also little ponds that suddenly started appearing near her house.

She begins to think, what could this be from?

Shawnene's father calls her over and tells her to get some whale for dinner down in the ice storage.

But she notices something. The whale has already unthawed just like everything else around her. She becomes sad and frustrated. Oh no... She's having a meltdown!

She goes upstairs to her father and explains that she feels like the world is literally melting right in front of her.

Her father sees the shocked look on her face, and sits her down to tell her about global warming. This is a conversation he dreaded, but it is something that must be taught.



Her father says to her,

“Our planet is changing, and I can see now that you have noticed. Our climate has been warming over time. Our modern way of life is ever-demanding and the planet is becoming overpopulated. Our air is becoming more polluted as a result of human actions, largely driven by industry.

Their activities have led to our Earth’s forests and sacred trees getting cut down to make profit. Loss of forests is called deforestation. Factory pollution and emissions from cars are leading to increases in greenhouse gases in our atmosphere. Carbon Dioxide is the main greenhouse gas and traps and radiates heat and releases it back to the surface. So as you can imagine

when carbon increases, it causes our Earth to become warmer than usual. All of these issues and more increase the carbon in our air which is bad for our entire planet.

It’s important to acknowledge that not all humans are responsible for these destructive practices.”

Shawnene begins to process this new important information. She wonders how all of this will affect her tribal community’s way of life but also Earth as a whole. She looks at her father with teary eyes and says,

“Does this mean we don’t get to have any more whale or make igloos?”

Her father puts her at ease and says to her,

“My sweet girl, you will soon understand.”

He then hands her a whale rattle he made and says,

“In this whale, you’ll find that it holds the ancient spirit and deep wisdom of our ancestors. It carries the powerful songs and stories of our people.”

Shawnene runs off outside near her igloo and ponds.





She looks over and sees someone with a big long pole.

“HEY!!” she yells **“What are you doing?”**

“Oh hi there! I am a scientist, and I work for NASA. My name is Davina. I am drilling into this sea ice, and taking samples to find out how thick the ice is.

We can also discover the density and salt content of these ice core samples which helps us keep track of how global warming is gradually affecting our planet. Studying these sea ice samples is important for our global climate. It’s also important to know how thick and thin the ice is in order to safely walk on it.”

What a coincidence running into this scientist is, Shawnene thinks. The creator must have felt her frustration. She then explains to Davina everything she has been noticing about global warming near her area. She asks Davina if what she is doing helps with these issues.

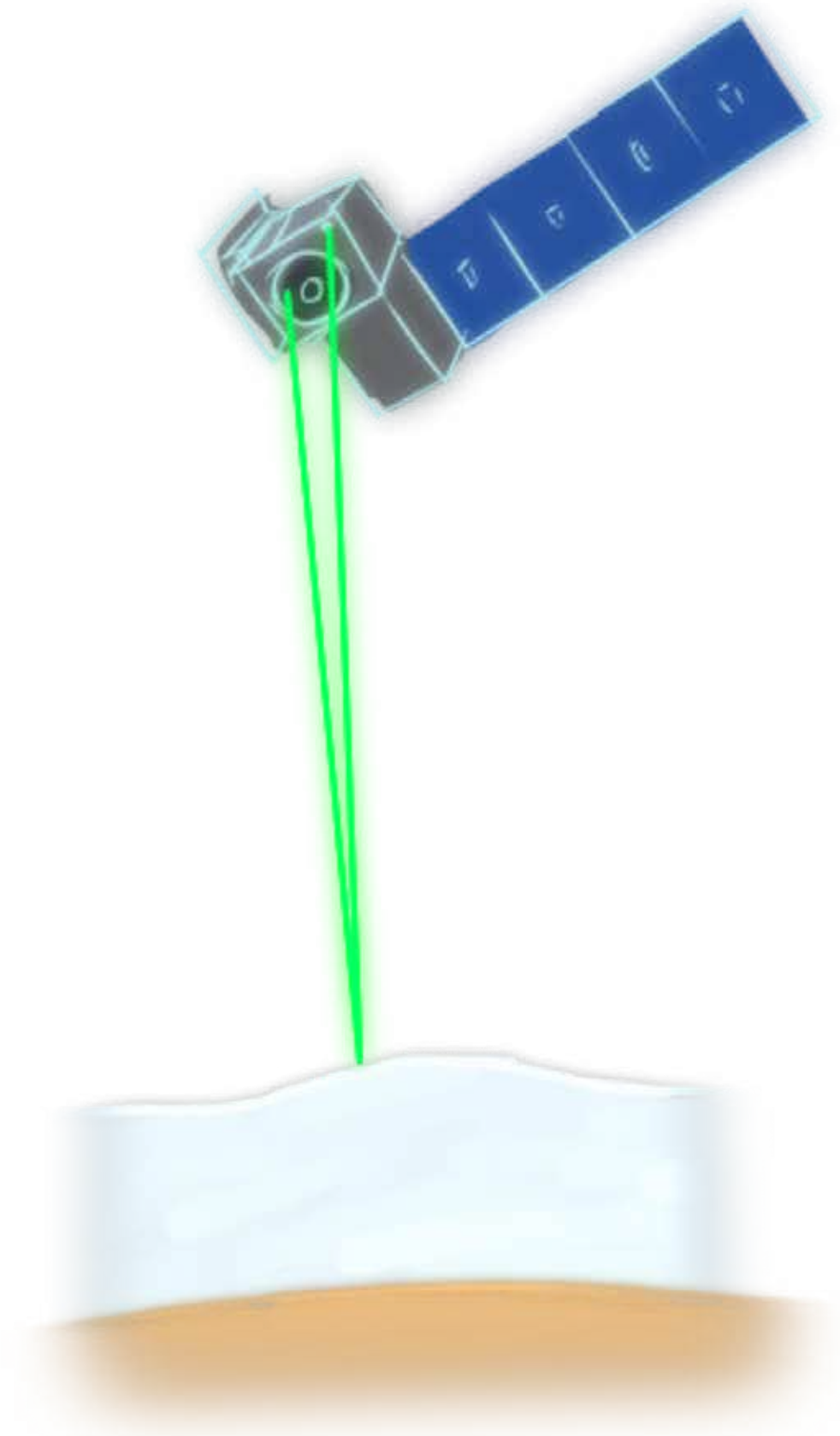
Davina responds,

“Yes, I am taking ground measurements for the ICESat-2 mission. This can help us verify the measurements from the satellite to better understand ice thickness.”

Shawnene asks, **“What is the ICESat-2 mission?”**

Davina responds in a way Shawnene cannot comprehend. So she takes what she can from the explanation and begins to imagine the ICESat-2 satellite.



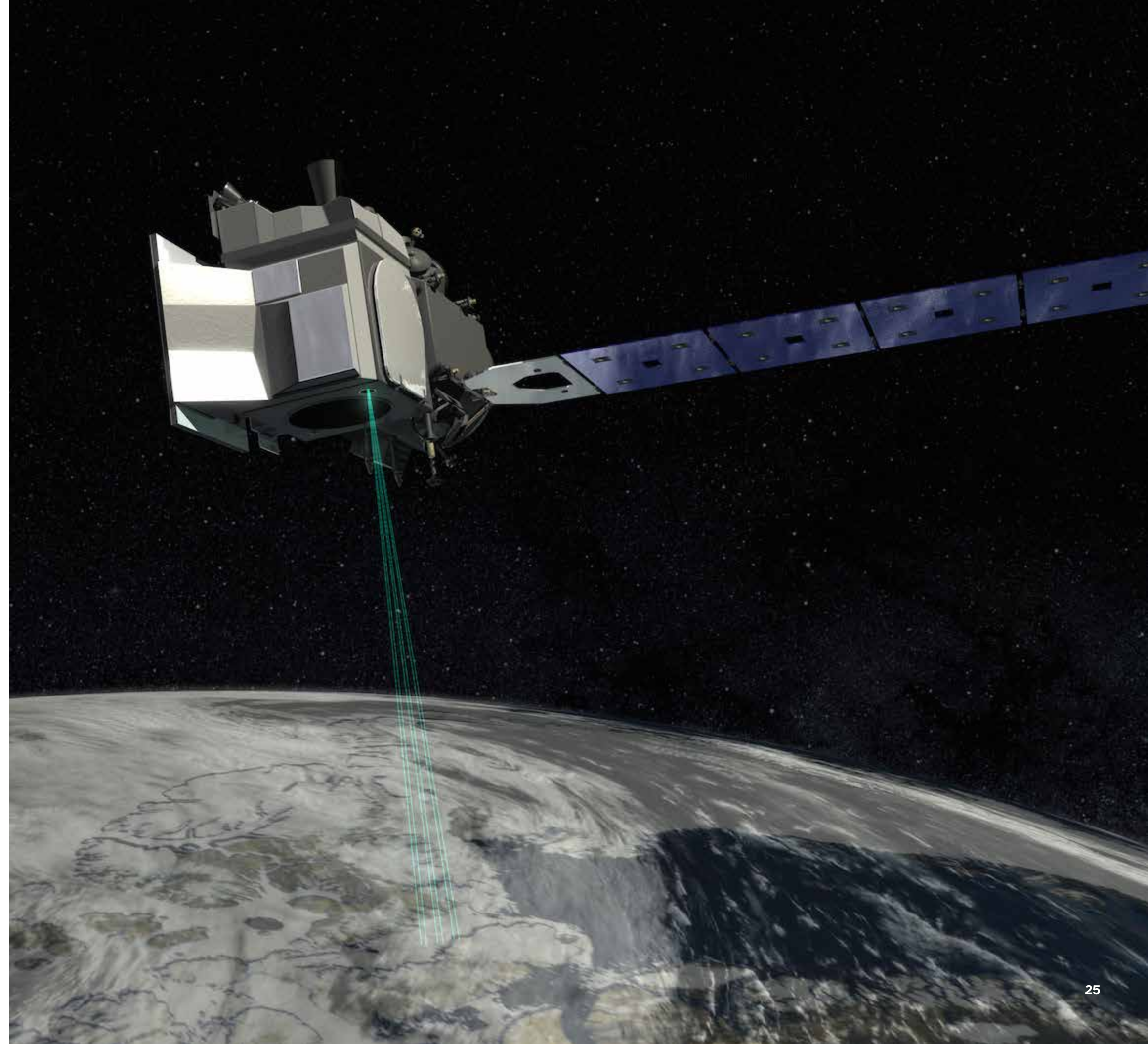


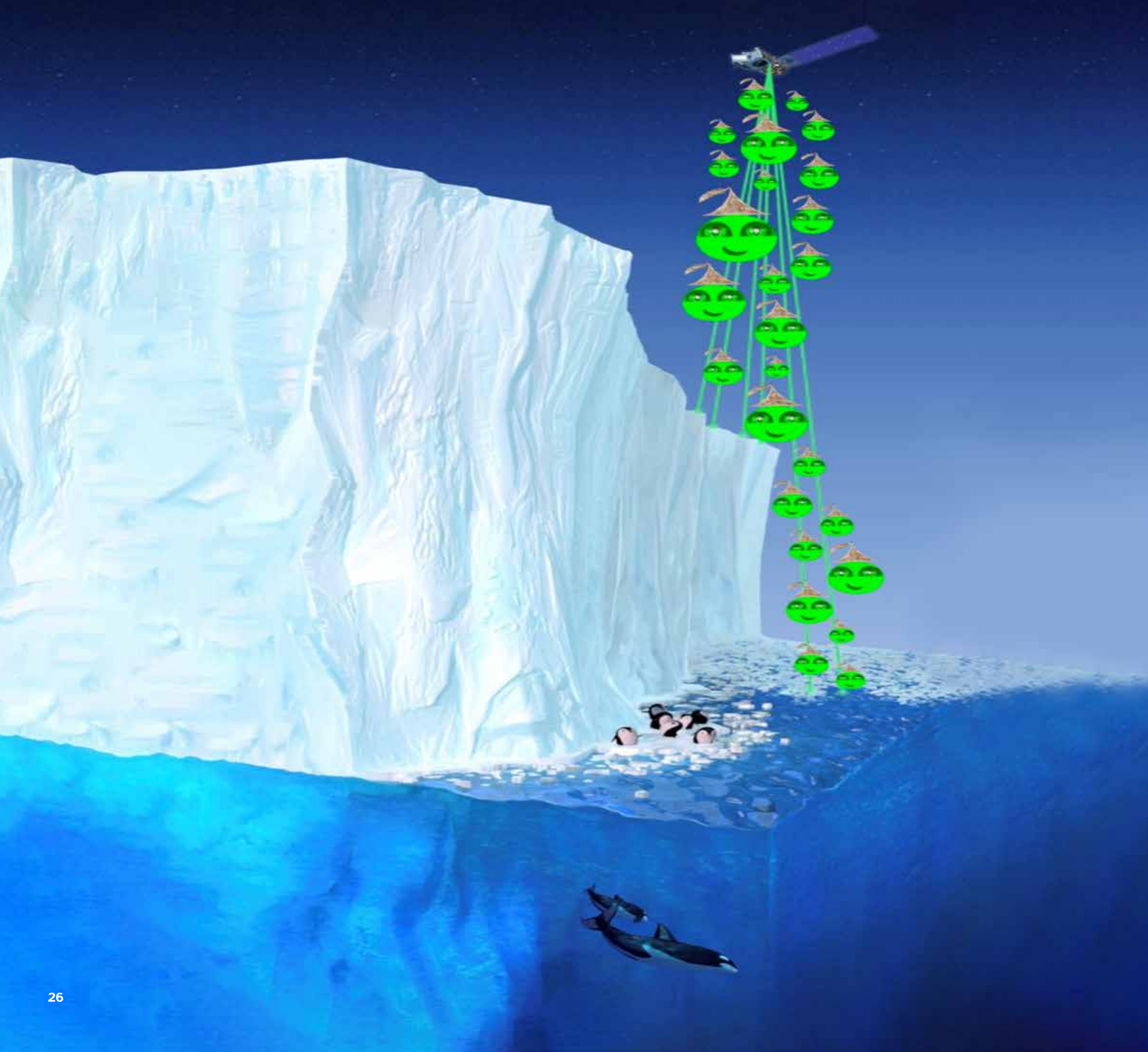
“Hi! I am ICESat-2, a satellite orbiting Earth. I am constantly measuring the heights of Earth’s ice, land, water, and trees. The same ice you build igloos out of, the same ice that you use for storage, and of course, the very same ice you walk on every day.

Let’s not forget I measure the land, water, and trees too! The same land that you and your ancestors walk on, the same water that holds your sacred whales and salmon, and the same trees our people back on the main land use for harvesting berries and cedar to make our cedar hats and canoes! These trees are also storing our excess carbon...

I have an instrument on board that emits green laser light and splits the laser into six beams. You can't see my beams but they contain tiny particles of light, called photons. Trillions of photons leave the satellite and bounce off the surface of the Earth.

The few photons that make it back are counted by my high-tech stopwatch. This information is sent back down to satellite dishes around the world. Scientists then get this information to calculate the heights of Earth's surfaces, especially land ice and sea ice in our cryosphere which are rapidly changing with global warming...





These changes are leading to sea level rise, changing weather and climate, in addition to disrupting traditional ways of life for native Arctic communities, and changing habitats for wildlife such as polar bears, whales, and penguins.

I have a solar panel that gives me energy, and my repeated measurements help scientists discover small changes in the ice which will help us here on Earth better understand our changing climate and predict things like sea level rise. It also helps people navigating the ice, and indigenous peoples like your father and you who need to go out on the ice for traditional whale hunting.”

Shawnene begins to think,

**“What is a photon?
What is the cryosphere?”**

These are all big words no kid is aware of. She begins to imagine ICESat-2 singing to her like her traditional songs.



“Way way up in the sky outside of Earth’s atmosphere, I examine the cryosphere but don’t worry, being this high up isn’t something to fear. So let’s all cheer! Let me make this clear...

I reside past the clouds where it isn’t very loud, not even a sound. I am where no airplanes can be found. I make scientists very proud; I sometimes attract crowds. I produce trillions of photons.

Wait! Pause, hold your applause. I bet you’re wondering what are photons? What is the cryosphere?

A photon is a tiny particle that must keep moving, oh yeah they’re definitely grooving!

They travel at a motion that causes no commotion called the speed of light. They flow like a wave. They must be brave.

A photon is the smallest piece of light. That must be a fright! Am I right? Now onto the cryosphere...

We’re in high gear, brrr the cold must be near. Oh my gosh is that a reindeer?

Frozen ice all around me. Yup, that’s right, I’m near the Southern Ocean! I am water but in solid form sometimes I transform from the warm, but mostly I am frozen!

This is why I’m a chosen study site. My whole mission is about ice, for Earth this is nice. But I must be concise, global warming’s effects come at a high price. So please take my advice.

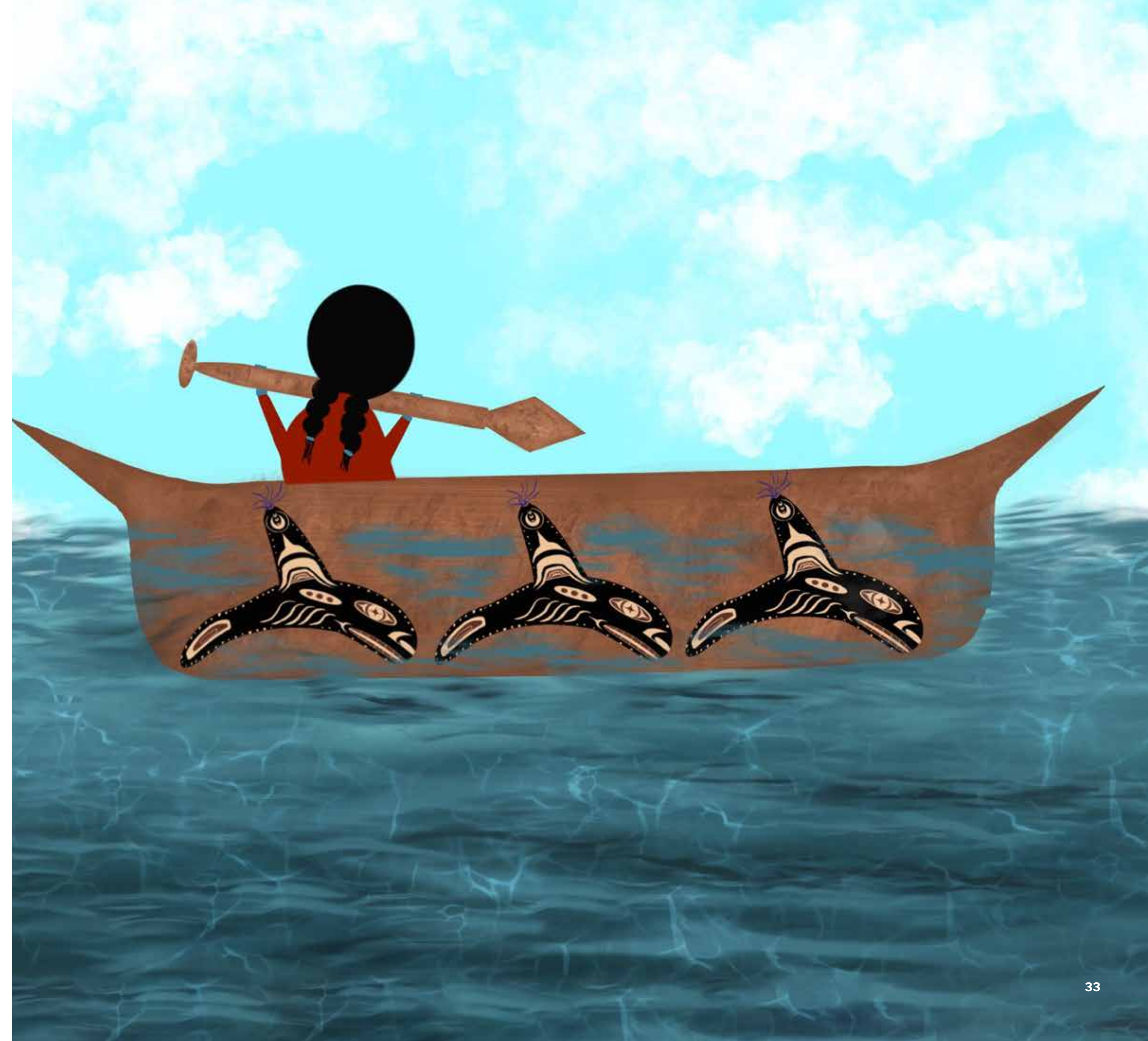
I cover and measure all of Earth’s elevation. I am full of information for our nation. I hold quite a reputation!”

Shawnene says to Davina,

“Wow, thank you for bringing awareness about this satellite. This satellite can really help not only my tribal community here in Alaska but even where my auntie lives along the Pacific Northwest coast in Washington. I see the photon wearing a cedar hat and paddling fast through the sky like a canoe race to be first back to the satellite.”

Davina responds,

“That is a great point of view of the photons paddling through the sky, considering the atmosphere around Earth is fluid-like. Please tell me more about canoes.”



Shawnene begins to think about her times out on the canoe with her family and friends. She responds,

“Canoes were the main form of travel for my ancestors. Tribes from all along the Pacific Northwest honor their ancestors by holding an annual ceremony called Canoe Journey.

Each year this ceremony is hosted by a different tribe. By paddling through the ocean of our old ancestral routes, Indigenous peoples like myself are revitalizing and connecting to our cultural traditions. Depending on where the canoes and tribal communities are paddling, this journey can last for days, weeks, or even a month. With permission, canoe families rest and camp at other tribes along the way, sharing and exchanging each others’ traditional dances and songs.

When the paddlers reach their final destination, they ask to come ashore and perform something called protocol. This is when a tribe provides their traditional songs and ceremonial dancing. The hosting tribe then does the same on the final day, and hosts a potlatch where traditional foods are provided and gifts are exchanged.

Canoes are used for many things from Canoe Journey to canoe racing, and harvesting of seafood.

Each tribe often names their canoe and paints something of cultural significance on the canoe. On my family canoe, we painted whales that match the whale rattle my father made.”

Davina responds,

“Wow, that is unique! What an amazing way to connect to your ancestors.”

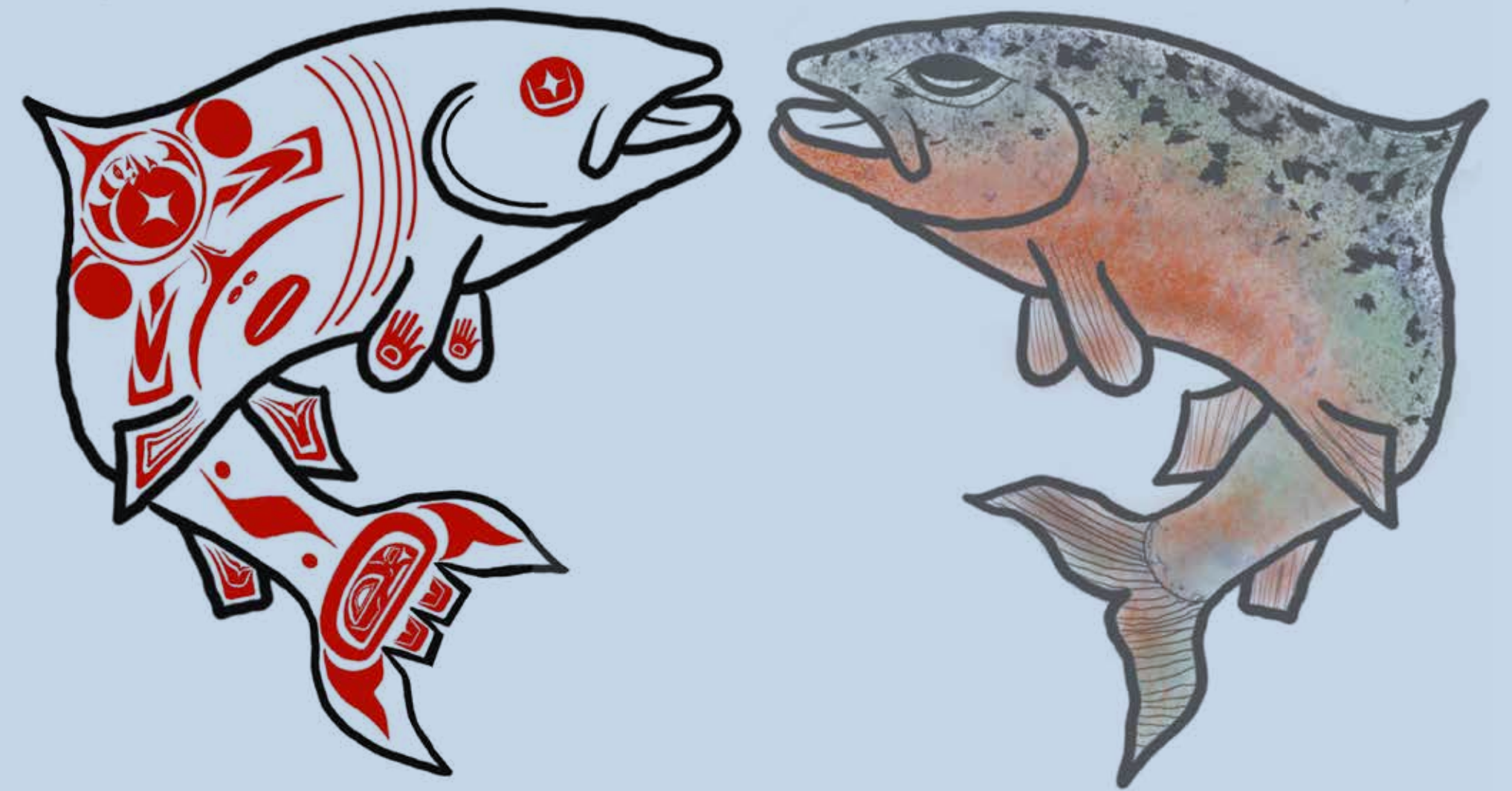
Shawnene looks over. Her father was standing nearby listening the entire time. He looks at her proudly. He walks up and says,

“Yes, my dear you are right. I taught you well.”

Davina asks more about the tribe in Washington. She’s amazed at how two tribes thousands of miles apart are connected.

Davina’s father says to Davina,

“My sister has been telling me about how their sacred salmon have been decreasing each year due to global warming. Their tribe suffers from flash floods and crazy water levels. My sister works at a hatchery where she takes the scales off of salmon harvested by tribal fishermen; Those scales are sent over to marine biologists for them to determine where the salmon have migrated from and believe it or not, they migrate to Washington from here in Alaska!”





The scientist notices the whale rattle Shawnene is holding. She has never seen anything like it, the shapes are so unique. She becomes curious. She asks Shawnene and her father to tell her about it.

He explains,

“This is the whale rattle I gifted my daughter. I made it shortly after last year’s whale hunting season because I had a feeling that we wouldn’t be able to hunt whale due to our changing climate.”

Whales are a frequently used motif in Northwest native art. They are distinguished by their round snouted head, large mouth and teeth, a blowhole, and dorsal/pectoral fins. Whale rattles are used in ceremonial gatherings during traditional songs and dances. Rattles are meant for all ages from newborn babies, to children and even adults.

Whales are of significant importance to many indigenous peoples for a variety of reasons. Whales are also used to represent some tribal clans and crests on totem poles.

“For our tribe here in Alaska, we hunt and harvest the whale and prepare months’ worth of blubber along with a ceremonial celebration. Other tribes believe that the spirits of marine hunters are whales.”

Whales are at the top of the food chain, and they are considered sacred. In some creation stories, it is said we descended from them.

From the beginning of time, salmon were the first to offer themselves as food. From then on salmon became an indicator species for not only indigenous peoples but marine life such as whales.





Sun rays reflect off Earth's bright white ice helping to keep our planet cool.

Shawnene's father continues to talk about these issues and what they mean to him.

"You see most tribal peoples make a living off of their traditional practices such as subsistence harvesting seafood, berries, medicinal herbs, and hunting. In recent years we've been having bad harvesting and hunting seasons due to global warming.

I try to stay connected to my traditions as much as I can during these trying times by carving and traditional art. I try to view our animals and the natural world in a unique way, think of it as Indigenous knowledge...

We as indigenous people were given the gift of understanding that every living and non-living thing around us has spirit of its own. In my artwork I make the animals' spirits come alive.

I taught my daughter that everything has a role in this universe. It is important for our sustainability to know where our indigenous thinking comes from, and how we decide to express it. We uniquely differ from other cultures outside of ours due to this way of thinking.

I express my indigenous knowledge through art and I believe my daughter will through science. I can see she wants to learn all about science but she still finds a way to include her indigenous thinking.”

The scientist looks at the father in complete awe. She now views science, her environment, and even our planet more differently.

She makes a phone call to her friend, Ellie, who is part of the ICESat-2 mission telling her how they must find a way to bring awareness to ICESat-2 and other Earth missions.

The unique beneficial relationship between the ICESat-2 mission and Indigenous peoples may also quite possibly be a pathway for more connections and diverse perspectives. Ellie asks to speak to Shawnene's father and asks him what he thinks about it.

He responds,

“This is the first I've heard of this ICESat-2 satellite, but from your friend's brief explanation it sounds like it can be impactful for both communities. Learning about Western science's views on this topic was eye opening. I am glad to have also opened you up to Indigenous perspectives of our natural world.

To me, this mission can more accurately help tribal communities determine how much changing sea ice is affecting tribal harvesting on the ice and waters as well as the salmon and whale that inhabit those waters. Salmon are considered an indicator species, so they are strongly dependent upon not just other wildlife and plants but our native people as well.

That is why I want to help bring awareness to the ICESat-2 mission and maybe other NASA missions that can help as well. Missions like these can help us become aware of the effects of our actions and hopefully inspire change. That way we can work towards restoration of not only the salmon's ecosystem but other ecosystems here in the Arctic and around the world.

This satellite can help give us an understanding of our changing ice

climates, by showing how fast the sea ice is melting gradually over time. It can also help show us whether it is safe to go out hunting on the ice.”

Davina and Ellie never knew how much missions like this could help not only tribal communities but each other. They realized these tribal communities may be willing to partner up and help them navigate the ice, which they have done in the past, and maybe even gather future data for ground observations to help verify satellite data. How cool would that be!

They begin to wonder how can they bring awareness to what NASA is doing, and what are some ways NASA could include diverse perspectives within their missions and research without leaving out the importance of Western science?

Her father tells the scientists,

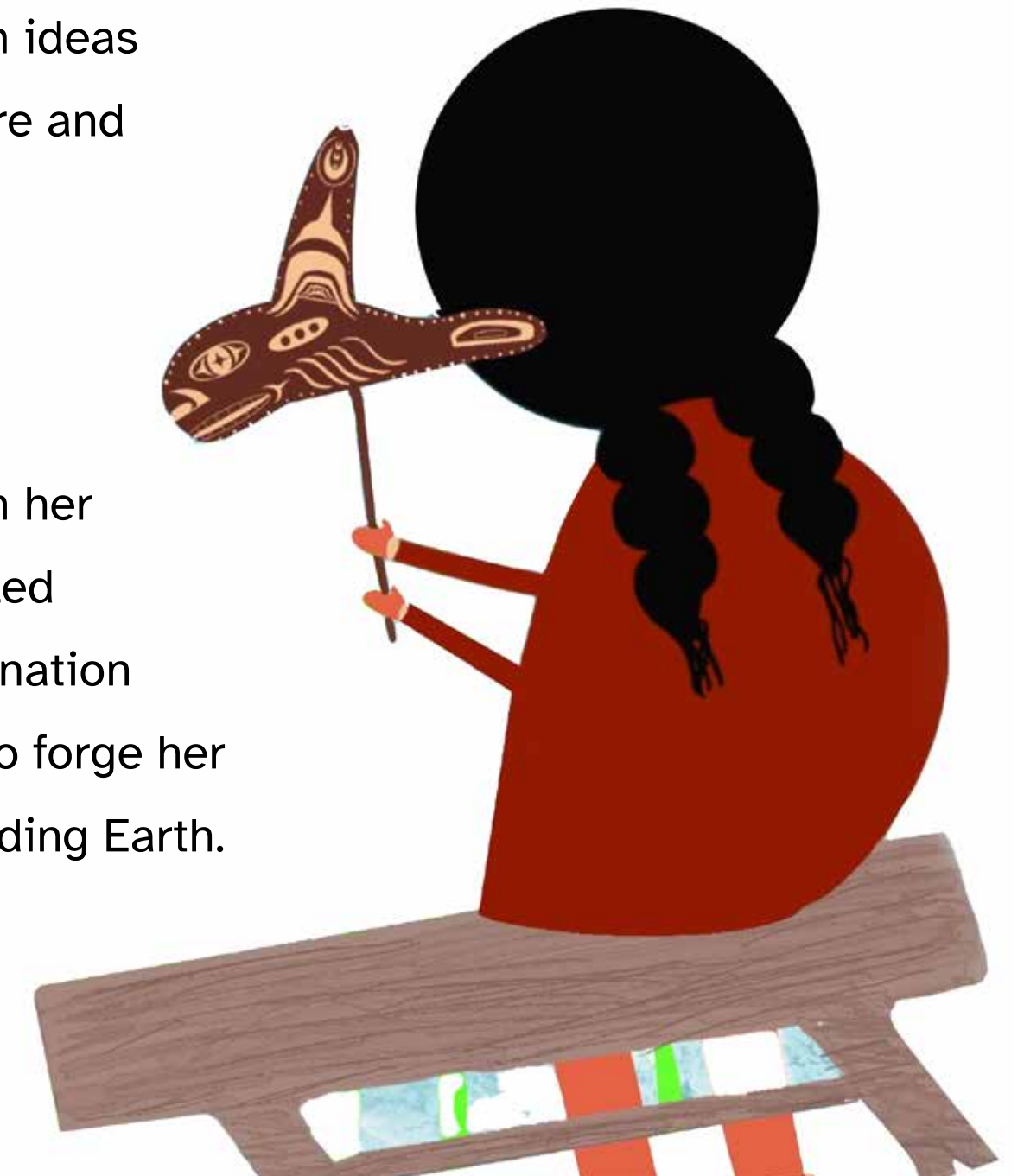
“Every day our planet’s environment and climate are changing so maybe we can too. The possibility of new connections and shared diverse perspectives can greatly benefit our Earth. We must work together to include more diverse perspectives such as Indigenous ones in our studies of Earth. Science explains how our environment and climate act and change, but how you take in that information and use it is all up to you.”

Shawnene continues,

“Our way of thinking can benefit everyone not just indigenous peoples. Next time you are out taking research samples say a thanks to the universe for allowing you to take from it, and let the universe know what you’re doing will benefit the planet. Giving back is important because everything is connected.”

Waves of gratitude flow over Shawnene as she hugs her cherished rattle. She recalls the sacred dances and songs her ancestors gifted her and her people, each echoing her people’s age-old connection with the land, the waters, and every living organism. Soon she finds her mind dancing with ideas of how she may nurture and protect Mother Earth.

As the songs from her ancestors awaken memories deep within her spirit, Shawnene is filled with powerful determination and personal calling to forge her own unique path in aiding Earth.



Definitions

Carbon: Take a deep breath in. And breathe out. You just exhaled carbon dioxide! All living things on Earth contain carbon. Even you contain carbon. Lots of it! Like every other living thing on this planet, we are a part of Earth's carbon cycle. Plants take in CO₂. They keep the carbon and give away the oxygen. Animals breathe in the oxygen and breathe out carbon dioxide. Carbon, including carbon dioxide, has cycled into and out of the air for a long time. This cycling of carbon has stayed balanced over long periods of time.

Cryosphere: The cryosphere encompasses the frozen parts of Earth, including glaciers and ice sheets, sea ice, and any other frozen body of water. The cryosphere plays a critical role in regulating climate and sea levels.

Deforestation: Deforestation is the removal of trees from a locality. This removal may be either temporary or permanent, leading to partial or complete eradication of the tree cover.

Density: Density is defined as the mass of an object divided by its volume, and most of our experiences with density involve solids. We know that some objects are heavier than other objects, even though they are the same size. A brick and a loaf of bread are about the same size, but a brick is heavier--it is more dense.

Greenhouse Gas: Greenhouse gases are gases in Earth's atmosphere that trap heat. They let sunlight pass through the atmosphere, but they prevent some of the heat that the sunlight brings from leaving the atmosphere.

ICESat-2: Ice, Cloud, and land Elevation Satellite 2, launched in September 2018, is the follow-on mission from the original Ice and land Elevation Satellite (ICESat).

Indigenous Knowledge: Indigenous knowledge refers to understandings, skills, and philosophies developed by local communities with long histories and experiences of interaction with their natural surroundings. It is defined as knowledge which is spatially and/or culturally context specific, collective, holistic, and adaptive according to the UNESCO's Program on Local and Indigenous Knowledge Systems (LINKS) (Hiwasaki et al., 2014a).

Photon: A photon is a particle of light that has energy and movement. It is the smallest and the fundamental particle of electromagnetic radiation which includes light.

Western Science: Western Science relies on certain laws that have been determined using the scientific method in order to explain the natural world. A hypothesis (or question) is created based on observations of the natural world and an experiment is designed in order to collect some type of data (The Living Knowledge Project, 2008). Scientists believe that this is the best way to understand the natural world because it is testable (Baker, Rayner & Wolowic, 2011).

Yəíyəlab: Ancestors (Lushootseed native language).

Hiwasaki, L., Luna, E., Syamsidik et al. Local and indigenous knowledge on climate-related hazards of coastal and small island communities in Southeast Asia. *Climatic Change* 128, 35-56 (2015). <https://doi.org/10.1007/s10584-014-1288-8>

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Credits and Acknowledgments



This book results from a remarkable journey that began with an internship at NASA Goddard Space Flight Center. This opportunity was made possible through the support of the Minority University Research and Education Project (MUREP) for American Indian and Alaska Native STEM Engagement under the mentorship of Valerie Casasanto, the ICESat-2 Mission Outreach Lead. Shawnell's journey with NASA, progressed into authoring and illustrating this book, showcasing her dedication to infusing STEM with indigenous perspectives, particularly in understanding global warming's impact on tribal lands. Her gratitude extends to Valerie Casasanto and the NASA community for supporting this endeavor.

All images are original artwork created by Shawnell McFarlane except the following:

Page 17: ICESat-2 Satellite Animation created by Adriana Manrique Gutierrez, NASA Goddard Conceptual Image Lab. Igloo, little girl on bench with whale rattle, and ice background created by Shawnell McFarlane.

Page 21: ICESat-2 Satellite and Biomes created by the ICESat-2/Savannah College of Art and Design (SCAD) Collaborative Student Program.

Page 22: ICESat-2 Illustration created by Adriana Manrique Gutierrez, NASA Goddard Conceptual Image Lab.

Page 25: Orbiting ICESat-2 created by NASA Goddard Space Flight Center.

Page 26: Animation/illustration of ice shelf, ICESat-2, and photons wearing cedar hat created by ICESat-2/Savannah College of Art and Design (SCAD) Collaborative Student Program, and photons in cedar hats created by Shawnell McFarlane.

Page 42: Ice Albedo, Global View created by NASA Goddard Conceptual Image Lab.

Page 56: ICESat-2 By the Numbers: Orbits created by Greg Shirah, NASA Goddard Scientific Visualization Studio.

Page 59: Image credit: NASA Goddard Spaceflight Center image by Reto Stöckli (land surface, shallow water, clouds).

I'd like to acknowledge the experts who helped me:

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I'd also like to include a special acknowledgment to my mentor, Valerie Casasanto. She really taught me how impactful outreach can be and the importance of it. She inspired me to stand up for what I believe in and make a change.

Valerie Casasanto

ICESat-2 Outreach Lead
NASA Goddard Space Flight Center

Additional Credits

Valerie Casasanto, Content Contributor and Editor

Lindsay Brine, Design and Layout Support

Inspiration

This story was inspired by my families as well as my tribes' traditional stories, knowledge, and experiences. The name Shawnene comes from an aunt of mine who passed away before I could ever meet her. My Mother named me after my aunt and herself: Shaw-Nell. My Mom's middle name is Nell.

The father in my story was inspired by both of my fathers, Larry McFarlane and Frank Cousins. One of them is a traditional artist/carver (Frank Cousins) and they are both traditional hunters, fishermen, divers, and harvesters. They are the best Dads I could ever ask for. Both taught me to work hard toward my dreams and never look back but don't forget who you are and where you come from. They showed me that our way of life is essential and a part of who we are. We are the people of the water/river. We come from a long bloodline of powerful resilient chiefs who fought for future generations.

I would not be able to express myself through stories if it wasn't for my great grandma Elsie Allen-Gamber (Tutsi). For as long as I can remember she has always passed on her wisdom and stories to us. She is one of my biggest supporters right next to my Mom (Shera Johns). Both inspire me constantly. They are always there to lift me up with their loving words of wisdom. They showed me how to navigate and overcome life's challenges. Because of them, I know what it means to be resilient.

Before publishing this book, I did a book reading and made sure that my younger siblings and tribal youth had the opportunity to provide feedback.

It was crucial to me that the story's significance was clear to them. Our youth are the future of our communities. I wanted to ensure that this book would resonate with them and inspire them to embrace their cultural identity.

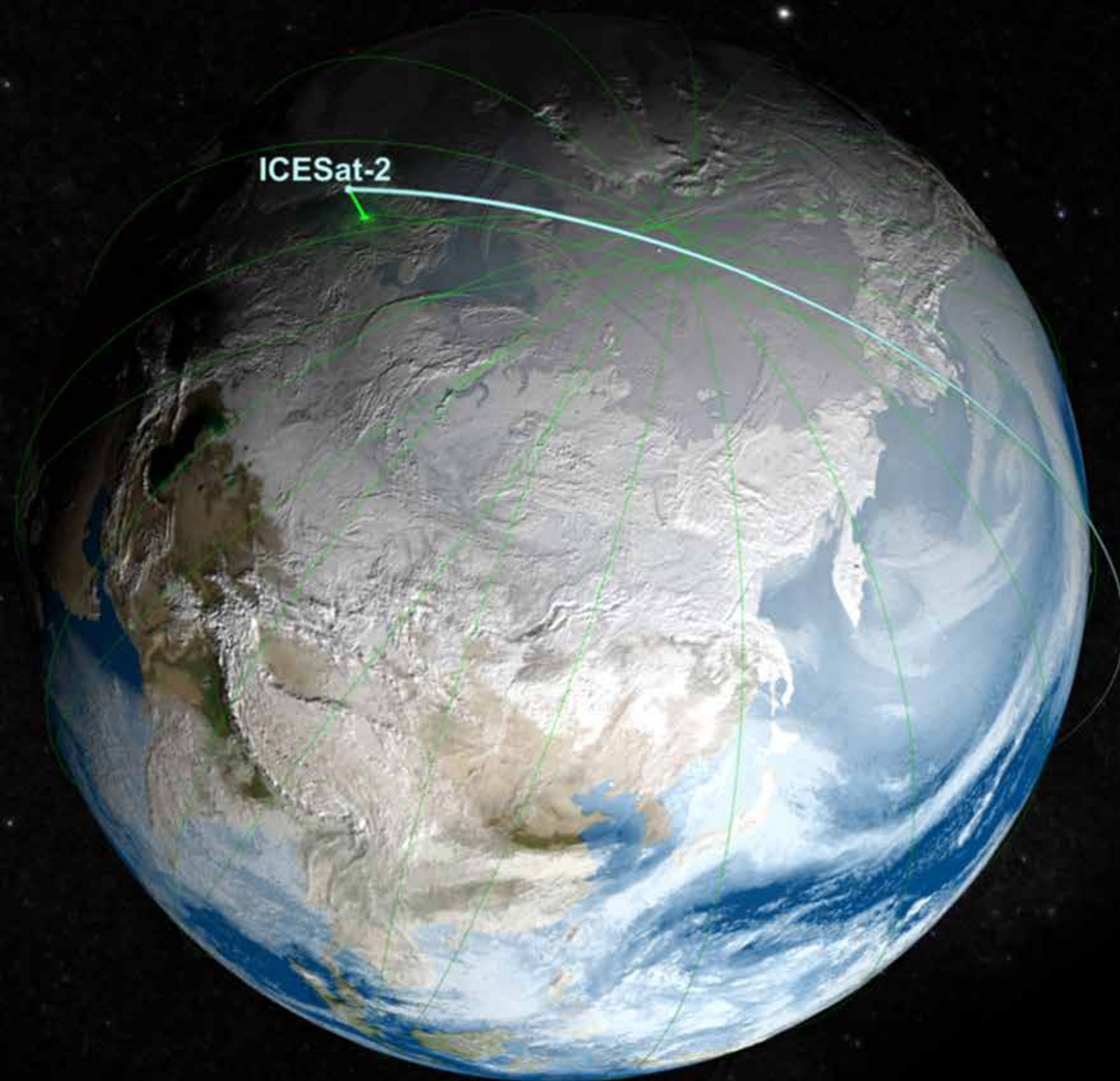
I wanted to show our youth that I have been able to express my Indigenous knowledge through storytelling in a way that is significant and valuable for I hope not only my cultural identity but theirs as well.

By sharing stories, I believe we help preserve our connection to the natural world around us. Stories serve as a reminder of ancestral wisdom passed down and provide knowledge for future paths to come. Our stories come to life from the sacred wisdom that is portrayed in them by our ancestors and elders deeply intertwining with our way of life since time immemorial.

It is essential that we acknowledge and respect the intrinsic value of these stories as well as recognize that they are not merely works of mythology or amusement but an essential component of our heritage as a nation. Storytelling is a sacred practice that serves as a means of preserving our way of

life. Stories hold important teachings and values. By sharing our stories and continuing to pass them down to future generations, we can ensure that our cultural traditions, beliefs, and customs will continue to thrive for generations to come.

Because of my siblings and tribal youth, I opened myself up to storytelling and became inspired by their curiosity and willingness to learn. As I watch them grow into their own unique selves, they inspire me to do the same. They serve as a reminder to always act with the purest form of intentions, remaining authentic to yourself while also standing up for what you believe to be right. They serve as a constant reminder to remain true to myself and to honor my cultural traditions and beliefs while pursuing my passions and goals and that it is never too late to learn and grow from others.



ICESat-2 Mission Statement

The Ice, Cloud, and Land Elevation Satellite 2 (ICESat-2), launched in 2018, measures the heights of Earth's ice, land, water, and trees using green lasers. Its primary focus is measuring ice—both on land and floating in the sea, to understand changes in the cryosphere—frozen regions vital to Earth's climate and the balance of life on our planet.

ICESat-2's mission isn't just about science—it's also about education. NASA wants to share its discoveries and inspire people to learn more about Earth and how everything is connected. A big part of this is reaching out to underrepresented communities, including Native American students, to spark their interest in science, technology, engineering, and math (STEM), and NASA careers.

This book brings two perspectives together—Indigenous knowledge and NASA's cutting-edge science, offering new perspectives on Earth's systems. Created during a summer internship by Shawnell McFarlane, it connects young readers to the exciting science of studying our home planet.

About the Author and Illustrator



My name is Shawnell McFarlane, a member of the Skokomish and Squaxin Island Tribe, known as the “People of the Water and River.” Water is the essence of life – it sustains us and connects us to the land and one another. It cradles our sacred salmon, makes up much of our bodies, and moves through our world as solid ice, flowing rivers, and mist. Yet, it faces growing threats from global warming. If we take it for granted, we risk losing not just the oceans and rivers but the ecosystems and oxygen that sustain all life. Remember, water is life and without it, nothing can survive.

This deep respect for water has shaped my journey. I earned a Bachelor of Science in Native Environmental Science from Northwest Indian College, and my work with NASA since 2021 has strengthened my commitment to ethical, inclusive practices and collaboration. I plan to further my education in planetary exploration, integrating Indigenous perspectives. I aim to honor the land, water, and sky while inspiring others to care for our shared future. Together, we can create a sustainable path forward.





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