

# LONGstorySHORT

with LESLIE WILCOX



**TITLE: JAMES KAUAHIKAUA**

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I always liked puzzles, figuring out how things worked, why they worked, and I like the outdoors. Although, I was encouraged by my parents to do things like collections. You know, stamp collections and coin collections, and things. I tried to collect rocks for a while, but that got kind of boring in Hawaii, because there are not that many different kinds of rocks. And at that time, if you bought a book that identified rocks, they were all mainland rocks, and maybe one would be a basalt from the volcano. And you say, Ah, that's what we have.

**You might say James Kauahikaua's passion for collecting things as a kid became a foundation for his profession. Today, he gathers data about Hawaii's volcanos. Volcanologist and cancer survivor, James Kauahikaua, next, on Long Story Short.**

Long Story Short with Leslie Wilcox is Hawaii's first weekly television program produced and broadcast in high definition.

**Aloha mai kakou. I'm Leslie Wilcox. Hawaii is home to some of the largest and most active volcanos on earth, and Hilo resident James Kauahikaua is close to the action. Kauahikaua, who studied geology and geophysics, works for the U.S. Geological Survey at the Hawaii Volcano Observatory, which monitors Hawaii two most active volcanos, Kilauea with its Puu Oo eruption going strong since January 1983, and Mauna Loa, as well as two less active volcanos, Hualalai and Maui's Haleakala. More than three decades after he started studying lava flows and eruptions, Kauahikaua is still fascinated by what he gets to do for a living. A Big Islander for many years, Kauahikaua grew up on Oahu in the Windward community of Kailua.**

**What was Kailua like then, as compared to the bustling metropolis it seems to be now?**

Yeah; I don't remember a whole lot about it, except from photos my parents had. And like all new neighborhoods, there was no vegetation, no hedges, no trees or anything. There were just these tract houses. We lived in Kuulei Tract, which is right around what is now, I think, Kailua Intermediate School. And we were a block and a half from the beach or so when I was old enough, we could do that.

**Why did your parents pick Kailua? Was there a family connection to that area?**

No. It was, I think, just new. My parents, when they were married, I think they lived in Nuuanu. And they moved after I was born, but it was like the first year. But I think it was just a new area opening up, you know, they decided to take the plunge, and maybe they could buy a house. The Kuulei Tract, I think, started in 1950 or '51, and I was born in 1951.

**What kind of Hawaiian background did your family employ? What was that like for you? Did you have a Hawaiian household? You're of multiple ethnicities.**

Right. I'm German from my mom's side, and Hawaiian-Chinese from my dad's side. And I've thought about that a lot. I think we had basically, your basic suburban household that just happened to have multiple ethnicities. About the only Hawaiian culture thing was, we'd go visit my grandfather out in Haleiwa every couple of weeks, maybe. Long drive, or course, at that time. And, you know, many of my uncles and other cousins would be around, and that was actually pretty interesting. The luau's, you know, you'd get all the really good stuff, the opihi and many, many delicacies. But yeah, I was never steeped in culture. I never joined a halau, I never felt the need or the desire to join a halau. But I've always been fascinated at that field. And so, I kind of think of myself, I guess, as an academic Hawaiian. I love to learn all about what Hawaii was like in the 19<sup>th</sup> century and before, 'cause that explains a great deal of how we got where we are, I think.

**James Kauahikaua was glad for the chance to be exposed more to the Hawaiian culture when he transferred in the seventh grade to the Kamehameha Schools in Kapalama. But when he reached high school in the late 1960s, he found himself at odds with a different kind of culture on campus, the ROTC military environment, and strict requirements for boys.**

At the time, I think they had just gone co-ed in high school. But for the boys, there was still mandatory ROTC. So, we all had to wear uniforms every day, had to parades couple times a year. And it was a military institute, they were very proud to say. We had to wear these little red pins that said it was a military institute. It was not just like your regular ROTC. I guess it's because we had to wear the uniforms, and we had to always be in uniform, you had to had to polish all your brass, had to keep your hair—you know, all that sort of stuff. Polish your shoes. None of those things interested me, and I was not good at any of them. And so, throughout my four years in high school at Kamehameha, I was never even probably considered for promotion once. You know, it's like the military; you get to be a corporal, then sergeant, or whatever. And I just stayed a buck private the entire time. But you also got demerits if you didn't polish your brass, or you didn't wear your hat outside, or you wore your hat indoors. You know, all breaking rules. And I got a lot of demerits.

**Were you trying to, or were you just hapless?**

Hapless would be a kind word for it.

**But were you trying to get into trouble? Were you making a statement?**

No; it wasn't important to me.

**But you weren't used to suffering consequences. You'd been a good student, and a good kid.**

Yeah. No; academically, I was good. But at that time ... in fact, I think they called my parents in a couple times, 'cause I was doing so poorly on the military end that I could have been kicked out. But I wasn't. But for every demerit that I got, I had to march around the ball field for twenty-five minutes after school. And so, ultimately, I couldn't do anything else after school.

**'Cause you were busy doing your—**

I couldn't join sports or anything.

**You were serving your sentence.**

I think you could march four of them an afternoon, so only two hours' worth, you know.

**So, I don't understand. So, after you'd done that a few times, wouldn't you stop getting the demerits? Wouldn't you say, I'd better, you know, polish my brass, or ... no?**

It just wasn't that important. That's all I can say.

**Despite all of those demerits, James Kauahikaua graduated from the Kamehameha Schools with good grades. He went on to college at the University of Southern California, and later Pomona College, where he majored in geology. He moved back home to Hawaii to earn his master's degree and doctoral degree.**

Geologists look at what's on the surface, and infer what's happening at depth from that. And geophysicists can do a bit better than that in terms of determining what's under the surface. So, I decided to do that. When I went to graduate school, I went as a geophysicist.

**So, you're closing in now on volcanoes. How did you close that gap?**

So, I went to school as a geophysicist at UH Manoa at a time when you had to get a master's first, and then a PhD. And so, I got a master's working on this big project called The Hawaii Geothermal Project. Their goal was to try to discover likely resource areas within the state, and one of the ways we were doing that was with electrical geophysical techniques. So, we did that mostly on the Big Island, but some on Maui and Oahu. That got me interested in that, and then when I finished my master's, I was offered a minority internship with the U.S. Geological Survey. And that's at the time when they were still doing affirmative action through hires. And so, I worked with them in Denver in a group that was doing electromagnetic studies. They were working out methods to use the techniques and all that.

**So, did you have trouble catching on there at first?**

No, actually. I just came in at a time with a set of skills that was what they needed at that time, you know, being interested in electromagnetic methods of detection of subsurface. And at that time, they were studying how the lava lake in Kilauea Iki was cooling. It erupted in fountains in 1959, and it filled up an old crater, so there was quite a good thickness of molten lava that was just sitting there and cooling. And so, electromagnetically, we could watch it shrink, sort of guide drill holes into the lava to take samples and things. And because I'd had that computer background from college, I was able to write computer programs that were able to interpret that data in a way that hadn't been done before. So, it was just a good fit. I was very lucky.

**A few years later, James Kauahikaua was hired as a staff scientist at the Hawaii Volcano Observatory at Kilauea on Hawaii Island. As a volcanologist, he studies past and present eruptions and flows, mostly on Kilauea, where an amazing bountiful eruption has been sending out lava since 1983. Kauahikaua's job sometimes puts him dangerously close to the molten flow.**

Often, we want to get pretty close so we can, you know, say, measure the velocity or something, the speed at which the lava is flowing in the tube. And you never do that by yourself. You always have somebody around watching you, making sure you don't slip or, you know, something.

**You've seen in the field those fountain domes. I've only see pictures of them. What is that like?**

They're quite loud, actually. They're coming out under gas pressure. And I think the one I've worked closest with is when Puu Oo was sort of split on one side, and there was lava coming out in fairly large amounts. But it was all confined, you know, where it was very clear it was downhill at that point, so we could watch it at a fairly close distance and make measurements. There was another time where the whole lava supply kinda stopped for a while, but then, it abruptly started again, and lava came back into this tube. And it came back in, in such a large amount that lava was coming out of the skylight in a very nice dome fountain. And so, once we got back out there, the dome fountain was going, it was clearly a much larger amount of lava going through there than before. So, I had to measure it. So, I got up there right at the edge of the fountain. It was upslope of the fountain, so everything was flowing away from me, and I was able to get that number, and it turned out to be some incredible amount, like eight or ten times what it had been before the lava supply had shut off. And you know, it eventually, died off within a few hours. But that was incredible. That was very noisy, the ground was vibrating the whole time.

**What are some of the stories you have of being out there with those fiery elements?**

Before I became scientist in charge, one of my specific projects was trying to understand lava tubes, how the conduit forms within a flow, and then how that evolved. And so, I would spend a lot of time around skylights, places that collapsed into the lava tubes. You can watch the lava flowing in there. It flows pretty fast, sometimes few tens of miles per hour, depending on the size of the tube. But it's very

quiet. And there was one time I wanted to make observations over three days, three days and nights. And so, I was out there with the bats at night, and it was just so quiet. It was sort of like watching paint flow, you know, 'cause it's slightly viscous. But it was just really quiet, but obviously, very hot. Beautiful; just incredibly beautiful. And at other times, you're in a position around, say, an aa flow or something, where you do need to pay attention to what it's doing very carefully, 'cause you want to be making some measurements close to it, but you have to figure out what the lava flow is going to do before, you know, while you're up there.

### **And you're out there alone?**

Well, I'm out there alone sometimes. But usually, I try to have somebody else there.

### **Is there any downplaying how dangerous this is?**

It's dangerous if you don't know what you're doing. And you wouldn't walk up to any of these flows if you didn't know something about what they're gonna do.

### **So, while there certainly are hazards that come with being a volcanologist, James Kaauhikaua's scariest moments in life have had nothing to do with his job.**

One morning, after I'd been up to Mauna Loa, I woke up, and all of a sudden, I had double vision. And so, you know, obviously, I went to see a doctor. But in the meantime, I still had to do my job, and so, I had to drive around for a while an eye patch on, like a pirate, you know, so I only got one eye and see one image. And it took a while. I saw a couple of doctors, got an MRI of my head, and all that sort of stuff. And after a few misdiagnoses, in January of 2003, I was diagnosed with nasopharyngeal cancer. There was a tumor just under the brain, behind the nasopharynx, which is how your nose connects with your throat. I had a lot of support of one or two neighbors who were doctors were, you know, kind of advising us. 'Cause you're getting a cancer diagnosis, you're immediately overwhelmed. It's scary, you don't know exactly what to do, what's the best thing to do first, and all this. And there were a lot of people that really helped us out. And so, almost immediately, started chemo and radiation.

### **What stage was the cancer in at that point?**

It was uh, 4A. It had ...

### **Advanced; it was advanced.**

It had metastasized, but way in the like, neck area, I think. So, there was still hope. I fortunately got to see Dr. Clayton Chong, who's also a Kamehameha graduate, and John Lederer, who's a radiologist, and they prescribed ... well, the chemo almost killed me, as Dr. Chong likes to laugh about.

So anyway, they did I don't know how many chemo treatments and forty or fifty radiation treatments, and they finally licked it. I'm in remission. I've been remission

since late 2003. And you know, my chances even then were pretty good to last for five years, but now, it's been, you know, eleven, twelve years, and I'm still feeling pretty good. I don't get checked nearly as often, which is kind of nice. But you never get rid of it, as Dr. Lederer told me. I asked him one time, Well, how do I know, you know, when I'm over cancer, when I'm done with cancer? He said, Well, you'll know for sure when you die of something else.

### **Scientists have a way of saying things.**

Oh, that's really positive.

### **Did it do some damage in your body? The cancer.**

Well, the cancer didn't, but the treatment did. It damaged my hearing, my hearing nerve. It wasn't obvious. They told me it was gonna happen. And it wasn't obvious at first, you know, the first six or seven years. But then, I slowly did start to lose my hearing. And so, at this point, I have to wear hearing aids, and even then, it's a pretty profound hearing loss in the higher frequency. So, when I'm talking to somebody, I have to watch their lips to get the consonants. 'Cause like S and F sounds the same. Even when I say it, it sounds the same. But you know, I'm alive, I survived, I'm happy. I just can't hear very well.

**After getting past cancer, James Kauahikaua applied for the top job at the Volcano Observatory. He became Scientist In Charge in 2004. During nearly eleven years of management before stepping back to refocus on his research, Kauahikaua installed a lot more technology, including webcams that show flows and eruptions in real time. He also improved communication with the community, and was the go-to guy for timely updates when the Big Island town of Pahoa was threatened by a long traveling lava flow in 2014 and 2015.**

### **You were called on to predict when it would stop.**

You know, I've been through enough of these things that, you know, I realize that we're limited. We can say a lot about what the lava flow's gonna do, or you know, the possible consequences and things. But there's just a limit to it; we can't answer everybody's questions. There were people that would come up to us and say, Well, you know, I was planning to go to California in two weeks, and I live right here; should I go?

You know, we can provide you the information so you can make the decision, but ... you know. And we made an attempt to sort of forecast how fast the lava would get to the highway, say. But every time we did that, we would be wrong. And we would be wrong in the public's eyes, which was very important. The way we would say it is, If the lava flow kept advancing at this rate, it would be at the highway in seven days, or whatever. And all they would remember is, it'll be at the highway in seven days. And that didn't happen, therefore, we were wrong. But the statement was accurate. And so, we didn't communicate that properly, I think. But I'm not sure how we're gonna do better the next time.

**I remember there were people saying, You've gotta build some kind of barrier, you've gotta stop this thing. And others were saying, No, you can't stop the flow, because it'll have other repercussions. Where were you on that?**

We did provide a lot of background, 'cause that's one of our functions. Hawaii actually has a fairly long history of diversion attempts. None of them have been hugely successful. So, you know, we can kinda look at that and say, Well, we don't want to do that, or do anything else. One of the factors, I think, that went into it was the fact that this eruption had been going on for thirty-three years, thirty-two years at that point. And so, if we divert this flow, this eruption's not gonna stop, it's gonna continue. And so, does that change the way the government then looks at it? What about the next flow? Does that mean that kinda guarantee we're gonna have to divert that? Or you know, I'm guessing that from the County government's point of view, the question of investment or whatever, you know, what is it gonna cost, is it really gonna be effective? And ultimately, I think the whole thing was decided by a statement from the Mayor, and he said that he wasn't gonna make any decisions until it was very clear what the outcome would be. And you know, that's something we can again go back to history and say what has been done in the past, but nobody can be sure of what the outcome would be.

**Why has that flow been going for more than thirty years?**

That's a very good question.

**You don't know the answer?**

No. It's been going long enough that the people that I started working have retired, and that's been their whole career. And in that time, we've all guessed. Well, you know, we've made guesses about what's going to shut the eruption off. Could it be a big earthquake, you know, shifts the plumbing around, and kind of cuts the magma supply off. Any number of things. And all of those things have happened, and there's just been no effect. You know, we've had several larger earthquakes, magnitude five and six, and ... nothing.

**I always feel that everyone in Hawaii who can, should go look at it, because you know, even though it's been going for so very long, many people haven't made it out there. And it's something that you may never see again.**

Oh, absolutely.

**For those of us lay people.**

I agree, totally. You know, that's how our islands were formed, it's a rare thing to be able to see. And access isn't great right at the moment, but it has been really excellent in the past. And just to see the glow from the summit vent now, the one that opened in 2008, I see that every morning as I drive in. It's incredible. This is from a lava lake that's,

you know, glowing so much and putting out so much gas, that you know, you can see that it's lit up by a lava light. You know, how incredible is that?

**What have you learned in your studies about what's happening with volcanic activity in Hawaii now, and what the prospects are for future activity?**

It looks like Kilauea goes through centuries of explosive activity, and then centuries of effusive activity. And within the explosive centuries, there may be a few lava flows; within the lava flow centuries there might be a few explosions. But in general. And so, when you realize that, and you think that maybe Hawaiian volcanoes in general do this, not just Kilauea, but Kilauea is important because there's so much right on and near the summit of Kilauea that it's possible, and it's certainly likely that at some point, Kilauea will go back into being an explosive volcano. Which has big ramifications for our building and the Parks Service, and the people that live close by. So, you know, if you'd asked me that question, say, fifty years ago, I would have just talked about the possibility of future lava flows impacting communities and things. And now, there's this possibility of a resumption of explosive activity. And these are fairly large explosions. It would probably affect air traffic, at least into the Big Island, if not into Honolulu too, because it would throw up ash and things much higher than the volcanoes themselves. They'd be troublesome.

**James Kauahikaua stepped down as Scientist In Charge in 2015. At the time of our conversation in 2016, he's at the Observatory doing research, which he says he enjoys a lot more than managing. And he likes to volunteer, sharing the wonder of volcanos with Hawaiian children in the enrichment program, Na Pua Noeau. Mahalo to volcanologist and cancer survivor, James Kauahikaua of Hilo for sharing your story with us. And thank you, for joining us. For PBS Hawaii and Long Story Short, I'm Leslie Wilcox. Aloha, hui hou.**

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**You know, sometimes, you don't know how important somebody is in your life, until much later. As you look back, who's been the most influential in your life? People.**

I would be remiss not to mention my wife, Jeri Gertz. She's very much a people person, always looking for fun things to do and stuff, which I can't say is my strong suit.

So, we make a good team, I think. But she inspires me every day.

**How does she inspire you?**

By being happy, you know, and finding the good things in everything.

[END]