



NORTHERN ARIZONA UNIVERSITY

American Indian Air Quality Training Program

Institute for Tribal Environmental Professionals



Vol. XXIII, #4

Wildfire Smoke: An Indoor-Air Issue

In August of 2015, two massive wild fires struck the Reservation of the Colville Confederated Tribes in NE Washington state, decimating more than 250,000 acres of tribal land, burning a dozen homes and destroying a quarter of Colville's timber resources.

The combined blazes sent resident asthmatics and others to the emergency room, jammed up travel, and disrupted the lives of residents throughout the area. Because visibility approached zero on stretches of the



Colville AQ Program Manager,
Kris Ray.

main tribal thoroughfare, roadblocks were erected to prevent vehicles from entering. Those within tribal boundaries who hadn't already fled were preparing to evacuate or knew someone who was evacuating.

The impact of the Tunk Block and North Star fires on Colville's ambient air quality was chokingly obvious. Inside many tribal buildings, the pollution threat was also evident. As the flames swept through Colville's forested acres, Kris Ray, Colville's Air Quality Program Manager, noted the thickening haze in his office. He decided to conduct a quick check on particulate matter levels.

A fire in 2012 that impacted the nearby town of Chelan had spurred an air quality pro there to perform similar indoor-air measurements. "That got me to thinking," Kris says, "which is why I purchased an Aeroset 831 portable monitor, so I could do that kind of work." He had just purchased the monitor a week earlier and hadn't yet operated it. But seasoned air pro that he is, he quickly reviewed the user's guide for the monitor and fired it up.

The outside air registered 980 $\mu\text{g}/\text{m}^3$ — 150 $\mu\text{g}/\text{m}^3$ of Particulate Matter is considered a threat to human health, and it's finer cousin, PM_{2.5}, is hazardous at far-lower levels. Kris knew PM levels in his office would be elevated, as bluish haze from the fire was visible around him. But he was taken aback by how much PM had penetrated tribal buildings. The initial reading was 405 $\mu\text{g}/\text{m}^3$ (micrograms per cubic meter) of PM_{2.5}. He would soon detect levels up to 800 $\mu\text{g}/\text{m}^3$ —far above the concentration considered hazardous to human health.

see **SMOKE** on page 5

Using Social Media in Your Air Program:

Get read, followed, clicked, shared & liked

By Aimée Benedict, Publications Manager/Webmaster –
Saint Regis Mohawk (Akwesasne) Tribe

Education is an important part of any successful air program. Social media is integrated into our lives and makes communication much easier than in the past. It can be a powerful tool in your efforts to educate your community and reach out to a wider audience.

If yours is similar to most tribal air programs, you have a lot of projects, not enough staff, and even less money. Social media offers several options for increasing your communications reach by effectively marketing and publicizing your air program and projects to a large, diverse audience. Best of all, it's free!

see **MEDIA** on page 8

IN THIS ISSUE

- p. 1: Indoor Wildfire Smoke at Colville
- p. 2: From the Executive Director
- p. 3: Interns: Where are they now?
- p. 4: Upcoming Air Courses
- p. 4: U.S. EPA Tribal Contacts
- p. 5: National Tribal Forum on AQ 2017
- p. 2: Personnel Notes
- p. 2: Images from recent ITEP air courses

From the Executive Director Ann Marie Chischilly

Many blessings to all of you and your families at this special time of year. It is my hope that you find yourself warm and safe. We are blessed.

I recently returned home from overseas. There I was privileged to speak at a seminar in Geneva, Switzerland at the United Nations World Intellectual Property Organization. WIPO is working to develop a worldwide treaty for the protection of traditional knowledge. The group has been working on this treaty over 15 years—it's a complicated process considering the vast number of indigenous peoples and cultures involved.

I addressed the audience on US tribal issues around traditional knowledges (TKs) and described ITEP's work with tribes. In our work, guidelines on the protection and use of TKs are crucial as we assist with climate change adaptation plans, air quality work and other efforts. I will keep you updated as the WIPO process moves forward.

As the new year approaches, ITEP is in the midst of several transitions. Internally, our Director, Mehrdad Khatibi, is leaving to work with Pacific Northwest and Alaskan tribes at U.S. EPA Region 10. Mehrdad has worked tirelessly to develop and manage a number of programs we offer tribes to assist them in their environmental efforts. We're proud of him as he moves on, and we know he'll be a great asset to tribes in the Region. We wish Mehrdad and his family the best.

Also leaving ITEP is longtime colleague Roberta Tohannie. Among her work at the institute, Roberta administered ITEP's Navajo Nation Workforce Development Program, which trained dozens of Diné individuals on environmental mitigation and related work.

We wish Roberta and family the very best in her future endeavors. Both Mehrdad and Roberta were incredible colleagues at ITEP and will be missed dearly.

Here at Northern Arizona University, ITEP is also transitioning from our administrative home within the College of Engineering, Forestry, and Natural Sciences, to NAU's newly developed Office of Native American Initiatives (ONAI). Although our transition might seem like "inside baseball", the advantages of this move for tribes should be significant. For the first time, ITEP will be housed within a unit focused specifically on tribes, and we'll have a direct link to NAU President, Rita Cheng. This closer association with NAU leadership should translate to more effective support for ITEP, you, and your tribal communities. Here's a link to the ONAI website: <http://nau.edu/ONAI/>.

Finally, WE, collectively, are in the midst of a big transition as the new administration takes shape in Washington D.C. As we watch the process develop, we hope for the best. We've had our challenges in the past, and we all know they have made us stronger. I know we will continue to come together to fight for the issues we truly believe in. We will carry our values forward to protect Mother Earth for our grandchildren's children and beyond. I'm confident that when we work together, we will succeed. Peace to all in this new year. ☺



Institute for Tribal Environmental Professionals

Northern Arizona University



*Native Voices is published quarterly
by NAU with a grant from the U.S.
Environmental Protection Agency*

Executive Director
Ann Marie Chischilly

Director
Mehrdad Khatibi

*Associate Professor &
Curriculum Coordinator*
Patricia Ellsworth

*TAMS Center
Co-Director (ITEP)*
Chris Lee

*TAMS Center
Co-Director (EPA)*
Farshid Farsi

EEOP Coordinator
Mansel Nelson

Climate Change Program Managers
Nikki Cooley & Karen Cozzetto

Solid Waste Prog. Sr. Program Manager
Todd Barnell

Solid Waste Program Coordinator
Roberta Tohannie

Sr. Program Coordinator
John Mead

Program Coordinator
Julie Jurkowski

Program Manager
Lydia Scheer

Natl. Tribal Air Association Project Manager
Andy Bessler

Accountant
Melinda Yaiva

Editor
Dennis Wall

Making Connections: Internships and Success in the Air Quality World

Over the years ITEP has facilitated scores of student internships at locations ranging from EPA's Washington DC headquarters to tribal, state and nonprofit environmental programs across the nation. In this issue we continue our series profiling some of ITEP's former interns to find out where they are now and how their internship experiences have impacted their lives.

Chris Lee, Co-Director, Tribal Air Monitoring Support (TAMS) Center, Las Vegas NV

Throughout his two decades in the air quality world, Tribal Air Monitoring Support (TAMS) Center Co-director Chris Lee has never stopped reaching out and making connections. That's as true now as it was in 1996, when he began his professional journey.

That year Chris applied for and was accepted to his first internship, through San Juan College in Farmington, New Mexico, where he was pursuing a science curriculum. The internship made it possible for Chris to connect with Mike Kelly, who was conducting a National Science Foundation grant project, developing software to model environmental issues. Mike brought Chris on to assist with researching coal combustion for the coal-mining module, and his career path began to open up. Through his research Chris connected with the late David Kelly, one of the founders of Navajo's air program. Chris recalls, "David put me in touch with a lot of things happening in the air quality world as it pertained to tribes."

During that time, Chris transferred to Northern Arizona University in Flagstaff to work on his degree in Environmental Science. At NAU he reached out to ITEP and landed a 10-week internship in 1999 with the Pueblo of San Juan (now called the Ohkay Owingeh Pueblo) in northern New Mexico. His internship role involved assisting with the tribe's 103 air grant,



Chris facilitates a breakout training session at the 2013 National Tribal Forum at the Ft. McDowell Yavapai Nation.

which was funding an emissions inventory as well as GIS work. "At that point I had a general idea what an EI was," he says, "but I didn't know the



TAMS Center Co-Director Chris Lee at the Grand Canyon in 2009.

specifics. During the internship I was fortunate that ITEP put me through their EI training, so I got specialized instruction on that."

At the ITEP training course, Chris linked up with instructors Bobby Ramirez and Lewis McLeod, two pioneers in tribal air quality. "I got to meet them and hear what they were doing. It sounded like my EI task was very doable." During the internship, Chris also reached out for support to Mary Uhl, a state air-quality staffer who would later become Air Bureau Chief for New Mexico's Environmental Department. Seeking more assistance, he also contacted staff at the Pueblo of Santa Ana's environmental program, who had just completed their own EI and were willing to share what they knew. Chris's own bank of expertise expanded even more, and with all that help, he says, "I was able to get a good start on the EI project."

As he pursued his duties—which would extend his internship by an extra two weeks—Chris also contacted the (now-disbanded) All-Indian Pueblo Council's Pueblo Office of Environmental Protection (POEP). "They were also a good resource, very helpful. Through them I met Annabelle Allison and Christella Armijo [two early tribal air quality pros]. I was

See INTERN on page 6

Upcoming IAQTP Courses

Air Quality Computations	Jan. 24-27	Phoenix, AZ
IAQ Diagnostic Tools	Feb. 7-10	TAMS, Las Vegas, NV
Mgmt. Tribal Air Prog. & Grants	Feb. 22-24	Phoenix, AZ
Air Pollution Technology	Mar. 13-17	Flagstaff, AZ
Fundamentals of Air Monitoring	Apr. 4-6	TAMS, Las Vegas, NV
AQ Proj. Planning, QAPPs, Grants in AK	Apr. 4-6	Anchorage, AK

Dates and locations can change. For updates, visit: www4.nau.edu/itep/air/training_aq.asp



NATIONAL TRIBAL FORUM ON AIR QUALITY 2017

May 1-4, 2017
Tucson, Arizona

A gathering of tribal air quality professionals, EPA and other federal-agency staff & representatives from academia, nonprofits and private industry, sharing information, skills, policy, regulatory initiatives and updates, culture and fun.

Optional Training Sessions 5/1

\$50 Registration Fee

Scholarship Support Available

http://www7.nau.edu/itep/main/Conferences/confr_ntf



U.S. EPA Tribal Air Contacts

To contact U.S. EPA's Tribal Air support staff, visit the web at:

<https://www.epa.gov/tribal-air>

ITEP on the Web

From our home page you'll find links to ITEP programs, info on upcoming events, training and support opportunities, and newsletters to keep you informed on our work in a variety of media.

Visit us at:

www.nau.edu/itep

SMOKE - from front page

Kris decided to check the air in a number of tribal buildings. “The readings were one-minute averages,” he says. “So I went to different spots in the buildings, usually starting from where office staff sit and moving back through, doing a few readings per room. About 3–5 readings per building were enough to get reliable averages.” He was

concerned by the levels he found in every building he monitored. PM_{2.5} concentrations ranged from 166 to 800 $\mu\text{g}/\text{m}^3$ —all falling within the unhealthy to hazard ranges. That included the tribes’ Head Start office, childcare facility, IHS clinic, and administration and legal offices. On the second day of the fire, the PM level spiked in at least one indoor space to a dizzying 1403 $\mu\text{g}/\text{m}^3$. Elevated indoor PM levels would persist at Colville for the next three weeks.

Clearly, maximizing the value of indoor shelters was crucial for responding to this and future fire events. On his rounds, Kris began identifying simple practices that could increase the level of protection for those staying indoors during a fire.

He realized, for example, that few people really understood the dangers of smoke-saturated air. Although many of the structures are built with double-door entries to help keep cold air out during frigid months—and could provide a similar check on polluted air—some workers were opening those and other doors excessively. Some were propping nearby self-closing doors open so they could step outside for breaks. Masks were not widely available, and some office dwellers continued to run air conditioning units that drew smoke in from the outside.

“I hadn’t given much thought about what to tell people,” he says. “but they were dying for information.” He handed out copies of U.S. EPA’s Air Quality Index, a color-coded chart that delineates health risks tied to increasing levels of air pollution, and he circled the levels he found in each space. “The AQI is really designed for ambient air,” he says, “but I think the levels correspond to indoor air pretty well.” He also roughed-out and distributed pamphlets on using masks and managing buildings for clean air, and distributed them to workers.

As volunteer nurses arrived and helped Colville’s own health staff check on elders with asthma and heart-lung issues, Kris partnered with the tribes’ Emergency Services and health workers to distribute masks and offer advice on protecting indoor air spaces, such as



The main highway through the Colville Reservation was closed during the fire; during some periods visibility approached zero.

keeping doors and windows closed and turning off AC during heavy smoke events.

The event made clear to Colville air and health staff the value of guidance (still in development by tribal health workers) to address future wildfire smoke—which will almost certainly remain a problem in the foreseeable future due to drought and climate change; climate scientists predict an increase in wildfires throughout the Western U.S. “Droughts will likely increase during the summers,” Kris says. “There’s a decrease in the snowpack, with more rain- than snow-dominated precipitation, which means the water doesn’t stick around as long. So forests dry out and fires become more likely. We’re also getting heavier wind events that last longer.”

To address smoke-related threats to residents from his techie vantage point, Kris has developed Standard Operating Procedures (SOPs) to follow when conducting smoke monitoring. He says in the heat of the event, “I could have been a little more organized. I took a steno pad, and I barely knew how to operate the monitor.”

Following up on Kris’s initial efforts, Colville’s health staff are preparing comprehensive guidance for those unable to leave the reservation during a smoke event (the protective principles can also apply in the case of silvicultural and fuel-reduction burns). Their “Smoke Ready Communities” approach will spell out a number of steps that Colville’s residents—and any community—can take to address smoke pollution. The still-developing guidance is based on a three-tiered approach: What to do before, during and after a fire.

Before a Fire

Air program staff planning to monitor for indoor smoke should purchase portable monitors; Colville’s Aeraset monitor is one of several that can perform PM and other readings. It’s also important, Kris says, to develop SOPs for monitoring during a blaze, and to work up some data management principles to help you manage the monitoring information efficiently.

Evaluate your home and/or office for its potential to allow smoke intrusion. A few simple actions, such as installing or replacing weather-stripping around doors and windows, can make a difference during heavy smoke events.



The Aeraset 831 portable monitor.

see SMOKE on page 7

INTERN - from page 3

really fortunate to get all these people to help. My enthusiasm was returned by them—they don't get an abundance of people asking about these kinds of projects. I got good help, and some good things started."

Bolstered by his strong internship performance, Chris was invited to join the POEP, where he helped set up particulate monitors and meteorological stations at several pueblos. "We operated that equipment, and after three months I was promoted to Quality Assurance Officer, with the task of overseeing quality-assurance documentation and the monitoring project data review." To help in that effort, Chris reached out to U.S. EPA Region 6 air staff and was offered assistance from Reg. 6 Quality Assurance Officer Bill Nally.

Reaching Out Far and Wide

Chris was living in New Mexico at the time, but he still needed two more credits from NAU in Flagstaff to complete his degree—a need that would require him to "reach out" in the most literal way. "Once a week I would drive from Albuquerque to NAU [a 600-mile round trip]. I would attend the class and then drive back the same day. After a while it started to wear on me. But I got some support from the instructor, who told me, "I didn't know you were doing this!"



Chris addresses the crowd at National Tribal Forum 2016, held at the Seneca Niagara Casino and Hotel in Niagara Falls, NY.

In that pre-Web era, he and his professor worked out a way for Chris to attend fewer classes while still tending to both his job and his final degree obligation.

In the summer of 2000, Chris left the POEP for the Pine Ridge Reservation in South Dakota, where he stayed with his stepfather, Everett Poor Thunder. "I was very close with my stepfather and the traditional ways he taught me are very important to me," he says, "and I would go there every summer to take part in ceremonies." During his visit he found a temporary job with the Oglala Sioux Tribe's Water Resources program. After a few months there, he learned

of an air-monitoring job opening with the Navajo Nation EPA at Fort Defiance, Arizona. With his growing expertise in air work and a desire to return to his home grounds in the Southwest, he was hired and headed to Fort Defiance.

This time his job with the Nation included serving as a point person and supervisor, which involved communicating with operators and the community on environmental issues related to industrial operations on the Navajo Nation. "In 2001, there was a situation that occurred in the Utah and Northern Arizona portion of the Navajo Nation involving the oil and gas operations. The only transmission pipeline moving

the natural gas product out of the area had degraded and needed to be repaired. The community had many questions/concerns and there were a lot of chapter meetings. I also maintained communications with EPA.

The Navajo Nation didn't yet have an operating permit program, so EPA Region 9 was the authority for major sources." Chris worked with Region 9 EPA staff to get air monitoring completed on the reservation for sulfur dioxide and hydrogen sulfide. "Aside from situations like the one in the oil and gas fields, much of my work experience was helping to develop the tribe's Title V program."

To that point, no tribe had yet developed a major-source permitting program. "There were a lot of unknowns in a tribal setting, with tribal law as it applied to the environmental rules and regulations of the delegated program and to how the emissions fees were to be collected under tribal law, etc.," Chris says. Although ITEP had not yet created a Title V course, he enrolled in the institute's Tribal Implementation Plan training course. "The overall process for developing a TIP was similar," he says, "so that helped." Coordinating communications among EPA and attorneys involved not only reaching out but connecting people with one another. Those efforts would eventually contribute to a first for Indian Country: the development of a framework for a tribal major-source operating permits program.

In 2004, Chris would take the expertise he gained at Navajo to the Southern Ute Tribe, where he worked for more than two years helping them develop their own Title V program—the first major-source operating program administered solely under tribal authority. After two years at Southern Ute, Chris accepted a position with Oglala Lakota College in South Dakota. While there, he heard that ITEP's TAMS Center in Las Vegas was seeking a co-director. He applied, was hired in 2009, and continues there today.

Reaching Out—The Big Picture

All those experiences and connections that Chris made between his first internship and his arrival in Las Vegas have served him—and the tribes—exceedingly well. His work at



Chris with (now outgoing) EPA Administrator, Gina McCarthy (left) speaks with an attendee at National Tribal Forum 2012, hosted in Tulsa by the Cherokee Nation of Oklahoma.

SMOKE - from page 5

Have a “clean room” within the home or building where you can stay during smoke events.

Purchase items to use in the event of a fire, such as N95 masks, in-room air conditioners, fans and air filters.

During a Fire

Smoke-related health symptoms include shortness of breath, watery eyes, coughing, and possibly disorientation caused by oxygen deprivation. Kris notes that disorientation can be a significant issue during a crisis. “You’re probably already under stress, and because of a lack of oxygen you may not be making decisions very well, so it’s harder to protect yourself.” Smoke and CO/CO2 produce similar symptoms. The Aeroset monitor used at Colville measures PM2.5 and even finer particulates, and two other sensors track CO and CO2.

Some protective measures during a fire:

- Leave the area (safely) if possible.
- Wear an N95 mask to reduce exposure to smoke. The guidance strongly suggests that those with respiratory problems should obtain doctor approval before using a mask, which can constrict breathing to some degree.
- Keep doors and windows closed as much as possible.
- Use a fan to increase positive indoor-air pressure and help keep smoke out.



A portable AC unit recirculates room air, providing heat relief without drawing smoke from outside.

–Use air filters. Some include ozone generators, which their manufacturers claim can help draw particles from the air. U.S. EPA does not endorse the use of ozone-generating devices but does provide information on them (www.epa.gov/indoor-air-quality-iaq/ozone-generators-are-sold-air-cleaners).

–Turn off air conditioning units that draw air from outside. If AC use is necessary, use portable AC units (available at some home-improvement stores) that recirculate indoor air rather than drawing air from outside.

After a Fire

Thoroughly clean indoor surfaces.

“After the fires,” Kris says, “the tribal health insurance company spent a huge amount of money on cleaning buildings. The cleaners were here for over a month, cleaning about 20 buildings. Smoke tends to stick to everything, and then you rub up against it and the particles are re-released into the air. And smoke can be really greasy.”

You can contact Kris at kris.ray@colvilletribes.com.



A mask can help keep lungs clear of particulates.

INTERN - from page 7

TAMS includes an array of tasks involving countless air quality pros (the TAMS Center serves all of Indian country), mirroring the variety of work he performed before he arrived there. In addition to general oversight of all TAMS activities—in partnership with Farshid Farsi, who co-directs from the EPA side of the operation—Chris assists in organizing ITEP technical classroom courses; helps TAMS technical staff coordinate individual support, equipment setups, and data management assistance for tribal air quality professionals; ensures the functionality of TAMS loaner equipment, which includes a variety of monitors and other tech equipment; and manages communications with the TAMS Steering Committee, a tribal advisory organization who help set TAMS priorities and share their knowledge of tribal-air needs for TAMS and other ITEP-oriented programs.

Chris is an enthusiastic booster of the internship process. “Especially with ITEP and the internships they offer,” he says, “it puts interns in contact with tribal environmental program professionals, and they get to see things in the ‘real world,’ on the ground. Interns can also see how difficult it is for some tribal programs to handle the tasks they have due to their limited resources. Despite the limited resources, interns can also see that there’s no reason a program shouldn’t succeed.”

He says after a period of reorganization involving EPA and the TAMS Center services, “Now we’re to the point where we’re more certain about the program’s future, and our Steering Committee has discussed the idea of bringing interns here to the center.” Chris recognizes how important interning has been in his own professional development, and he and the steering committee also know that such programs can help both the interns and those who host them. “We’re really fortunate to have some good, capable technical people with us,” he says of the TAMS Center staff, “but we also recognize that at some point, some of us might decide to move on. So we’ve discussed ways to address that. One of the best routes could be to sponsor internships, so when our people do move on we’ll have a fresh pool of people who might be willing to come here and do this work on behalf of the tribes.”

Reflecting on his early days in air quality, Chris says, “Internships are definitely worth the time and energy spent seeking them out and participating in them. If a person comes in and has a sincere desire to do their tasks, to see their projects through, it can really help. An internship might not be easy, but it can be a great experience.” Chris’s own professional history affirms that if you reach out, forge connections, and draw on the experience of others, you might open up a world of opportunities.

MEDIA - from front page

Examples of social media uses:

Let your community know that a burn ban is in effect and list its advantages. Post the current fire danger maps. When the burn ban is lifted, where can tribal members get a burn permit? Post about the unhealthy effects of smoke in the air from a burn barrel, an agricultural burn or a wildfire.

Solicit participants for a study you are conducting. Provide general, non-technical results of a completed study (limiting the number of charts and tables).

Post notifications from the AQI Index, but don't post in airhead (air quality professional) speak. Some require translation:

Before: The air quality today in Akwesasne is unhealthy for sensitive groups. The Air Quality Index is Orange, 101 to 150. Although the general public is not likely to be affected at this AQI range, people with lung disease, older adults and children are at a greater risk from exposure to ozone, whereas persons with heart and lung disease, older adults and children are at greater risk from the presence of particles in the air.

After: The air quality today in Akwesasne is rated 'unhealthy'. Those sensitive to ozone and people with heart or lung disease should limit outdoor activity, especially afternoons and early evenings when ozone levels are highest.

Share when you'll be presenting to a classroom or have an informational table set up at a community event. Be sure to mention if you have promotional products.

Share an article you've written. Post it on your website and provide the link. If it is a technical document, some people may not read it, but it still shows off your program and lets your community know you are a respected professional in your field.

Did an agency recognize you or one of your staff for an award? Recognize their accomplishments and have your followers congratulate them.

Turn Friends into Followers

The first social media site went online in 1997. Other specialty sites like MySpace and LinkedIn began in the early 2000s. Facebook and Twitter were introduced in the mid-2000s and social media exploded. Currently, thousands of social media apps are available. Listed below are the most used and useful for reaching the largest number of people—some of whom will choose to become “followers” (people who choose to keep up on your posts, either by subscribing to them or checking in regularly).

Facebook is the most popular social media site, with over 1.59 billion active users each month. Through FB you can share messages, photos and links, and it's easy to use and maintain. Although still very popular with youth, its users are getting older. Surprisingly, 56% of elders aged 65 and up have used Facebook.

YouTube is a video-sharing site with over four billion videos watched each day by 800 million users. Your air program can use

this site to share educational videos, such as “To Burn or Not to Burn” or “How-to's” such as “How can we reduce air pollution?”

Twitter utilizes short (140-character) messages called “tweets.” This is where you see the “hashtag” or pound symbol: #. The symbol is used to categorize tweets and makes topics easier to find. If enough people post using your hashtag, the tweet could “go viral” (spread widely on the web). Twitter has 305 million active users.

LinkedIn: Registered members establish networks of people they know and trust professionally. LinkedIn has more than 414 million users, each averaging 900 people in their network of connections. Through the service you can join an air quality professionals' network to share information, locate documents such as a Quality Assurance Project Plan, and find qualified personnel for an open position in your program.

Snapchat, Tumblr, Instagram and others: These sites are favored by very young users and offer services similar to Facebook, YouTube and Twitter. Using these along with those listed above requires added work but offers little additional return.

Benefits of Social Media

Proper use of social media provides a range of benefits for your program.

Reach more people. Develop a good sense beforehand of who your target audience will be. Social media allows you to reach community members as well as people who may have a personal, business or professional interest in the topic. Some examples of target audiences: youth, young adults, homeowners, parents, elders, tribal members, tribal council and administrators, funding agencies, local industries and businesses.

Increase traffic to your website. Posting links will direct people to visit your website. They can browse around to find other interesting items.

*Social media should be only **part** of your communications plan.* Use as many of your communications vehicles as possible. Don't ignore other media like your website, newspapers, radio, trade journals, newsletters and TV stations.

Track users. Since social media results are measureable, you can determine and report on who was interested in your post, their age group, location and interests. Using these insights will help you to know your audience better and improve your strategy for engaging them. The resulting numbers are impressive when reported to your funding agencies.

Get your program recognized. Familiarity with your staff and projects can help boost participation in future projects. Your followers have already begun to build a trust relationship with your program.

Manage Your Message

Many tribes have a department to maintain their social media. This could be your public information or communications department. If your tribe lacks a social media presence, you could opt to manage the sites yourself. Check with your administrators

see MEDIA on page 10

Personnel Notes

After serving for more than 13 years with ITEP, Mehrdad Khatibi, ITEP's Director, is moving on. In early January Mehrdad will join EPA Region 10 in Seattle and will work with the agency to support tribal air programs in Alaska, Washington, Oregon and Idaho.

Mehrdad joined ITEP in July 2003 as Associate Director. A graduate of Western Washington University, he came to the institute after serving for several years as Director for Jemez Pueblo's Dept. of Resource Protection.

"I was recruited by Virgil [Masayeva, ITEP's co-founder and director until his passing in March 2005]," he says. "I learned a lot working with Virgil. He taught us all to always listen to tribes, in order to better understand how ITEP could develop programs to meet tribal needs and priorities. That's been part of ITEP's mission and continues today. I also had the great privilege of working alongside Cal Seciwa. He brought with him a deep commitment to Native students and preservation of cultural and sacred places. Both Cal and Virgil left us too soon, and we owe them a great debt of gratitude." Since 2011, Mehrdad has been working with Ann Marie Chischilly (ITEP's Executive Director) and others at ITEP to develop and expand the support that ITEP provides to tribal environmental professionals, by developing new partnerships and expanding services to meet an ever-growing demand for training and technical assistance.

"The best part of this job," he says of his time at ITEP, "has been developing good, strong working relationships with tribal professionals, and working with everyone here to develop programs that directly support tribes. The programs we've developed, the work everyone has done, that's been extremely meaningful. I'm looking forward to continue that work in my new role with EPA in Region 10."



Mehrdad Khatibi



Roberta Tohannie

ITEP would like to bid Roberta Tohannie a fond farewell as she leaves her position with us on December 31, 2016. Roberta joined ITEP in February of 2007, after having worked many years in other departments at NAU assisting Native American Students. She originally worked with our Tribal Solid Waste Education and Assistance Program, delivering solid waste training and technical assistance. She also coordinated hazardous materials training for our Tribal Waste and Response Assistance Program, before taking on her own program, the Navajo Nation Workforce Development Program. In 2011 she was the recipient of the Cal Seciwa Award, named after one of ITEP's former directors. We all wish Roberta much happiness and success in her future endeavors.

Colleen Davis joined the Institute for Tribal Environmental Professionals in 2014. She began as an Accounting Assistant for the Budget Office and transitioned to the Administrative Assistant for the Climate Change program. Instilled with values to care for the environment and skilled in administrative work, Colleen has found a way to combine her values and work ethic to help with the initiatives of ITEP programs.



Colleen Davis



Fletcher Wilkinson

Fletcher Wilkinson is ITEP's Climate Change Program Coordinator. Fletcher joined the ITEP team in 2016. He holds a B.S. in Environmental Studies and an M.S. in Climate Science and Solutions from Northern Arizona University, and has experience with climate and energy policy at the local, state, tribal, and federal levels. Along with his role at ITEP, Fletcher works with tribal and rural governments in the Southwest on energy issues, including renewable energy development and policy creation.

Natasha Fulton was recently hired as a full-time staff member to support several ITEP projects as a Research Specialist. Natasha is from Greasewood, AZ on the Navajo Reservation. She attended NAU and received her Bachelor's in Public Health. She has worked with ITEP's Environmental Education Outreach Program for the past three years as an instructor and administrative assistant. Natasha says, "I feel fortunate I can continue to



Natasha Fulton

work with an organization that works closely with tribal nations to promote learning and environmental awareness. I look forward to the knowledge I will gain and the contributions I will make. I am also very thankful for this new opportunity!"

Dara Marks Marino is a part time Research Specialist with the National Tribal Air Association. She is assisting in the creation of the 2017 Status of Tribal Air Report (STAR) as well as the NTAA weekly updates. Dara holds a Master's in Climate Science and Solutions from NAU and is currently the Professional Development Coordinator for the CSS program. Dara spent most of her adult years as a professional mountain bike racer and triathlete, as well as a coach for other cyclists and triathletes. She has a sparkly 8-year-old daughter who has her mom's fervor for both social and environmental justice. 🌱



Dara Marks Marino

MEDIA - from front page 8

and tech support personnel to make sure this is allowed within your organization. Keep in mind that it takes time to prepare and post messages.

Some considerations when you post

- Keep messages short. The fewer words you use, the better the chance that someone will read them.
- A poorly written post with spelling or grammatical errors can cause more harm than good. Build a relationship with your public relations department or your organization's grammar police, and draw on their expertise.
- Always add an image. Photos are best, but clipart can work. Although sites will automatically resize your images, they take a lot longer than text to upload. Keep pictures very small—about three inches wide and tall at a medium resolution of about 150 dpi. People are visual learners; viewer engagement increases by 37% when accompanied by an image. The percentage increases even more if you use a child, pet or animal!
- One or two posts per day are reasonable. Four to five posts per week are ideal. Too many posts can get you 'unliked', 'unfriended,' or 'unfollowed.'
- Spread out your posts to appear in the morning, afternoon and evening. The best days to post are Monday

thru Thursday. Fridays and Sundays are the worst due to increased traffic. Social media access peaks evenings from 6:00 to 8:00 p.m., so schedule important posts to appear during those hours.

- Make sure you post at least one item every week. Don't let the site go stale.
- Monitor your site constantly. "Haters" will post negative comments just because they can. Although your first inclination may be to hide negative comments, turn them into positive opportunities by inviting these "flamers" or "trolls" to share their ideas, for example by participating in a study or attending a meeting.
- Keep up with new technology, which might provide added benefits. Don't be afraid to ask for help.

Other Considerations

Although you may not consider your posts newsworthy, they make your program more visible and can enhance its perceived value to your community. Your posts might also generate inquiries from a reporter looking for a story. That's a good thing if you're prepared to answer their questions, a bad thing if you're not.

Social media is an effective tool to help you engage, inform and educate your audience. Make a positive social impact on your program and share what it does with your community, your profession, and the air we breathe. ☺

Images from recent ITEP Air Quality courses



ITEP staff conducted an Indoor Air Quality in Tribal Communities course in Fargo, ND, in partnership with the Sisseton Wahpeton Oyate Tribe in South Dakota. Above, course participants pose in the tribal headquarters after completing home IAQ assessments. This introductory course prepares participants to help their community improve air quality in homes and schools.



Participants in a Climate Change Adaptation Planning course, hosted by the Pala Band of Mission Indians in southern CA. This was the first climate course facilitated by ITEP's new Climate Change Program Co-Managers Nikki Cooley and Karen Cozzetto.



James Payne (R), Environmental Director with the Morongo Band of Mission Indians, instructs an Introduction to Tribal Air Quality course held last Sept. at Northern Arizona University in Flagstaff, AZ.