

CNYAPG
April 2021



**Central New York Association
of Professional Geologists**

**Nicolás Pérez-Consuegra
(Syracuse University)**

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21 April 2021 Virtual Meeting– 6:00 PM

Nicolás Pérez-Consuegra (Syracuse University) will present:

***Unraveling the incision of the Cauca River Canyon of the Northern Andes:
Contrasting cooling histories revealed by AFT and AHe thermochronology***

The incision of kilometer-scale canyons into high topography is often used to constrain the surface uplift history of mountain ranges, controlled by tectonic and geodynamic processes. However, changes in climate, such as orographic enhancement of precipitation during mountain growth or periods of time with increased rates of precipitation, may also result in the incision of canyons. This project aims to decipher the timing and, ultimately, the role of tectonic/climatic mechanisms on the incision of the ~2.5 km deep Cauca River Canyon in the Central Cordillera of the Northern Andes. We propose two testable hypotheses: (1) Tectonic hypothesis: canyon incision started since the Late Miocene (6-10 Ma) and it is synchronous with the documented onset of flat-slab subduction beneath the northern Central Cordillera. In this scenario, flat-slab subduction and greater coupling with the overriding plate caused plateau style uplift of the northern Central Cordillera and river incision occurred in response to increased relief; (2) Climate hypothesis: an acceleration of canyon incision has occurred since 4 Ma, decoupled with the timing of surface uplift of the northern Central Cordillera and would be a result of increased precipitation variability during the late Cenozoic. In this work, the cooling (exhumation) history of rocks from canyon walls is used to constrain the rate and timing of canyon incision. Eight bedrock samples (from 300 m to 2300 m elevation) were collected on the eastern border of the canyon. Preliminary AFT data yield ages from 42 to 53 Ma. Two bedrock AHe ages from the valley bottom yield ages of ~6 Ma. The AHe cooling ages are interpreted to represent the timing of incision of the Cauca River Canyon and suggest the tectonic hypothesis is correct. The absence of younger AFT ages in the Cauca River Canyon can be explained if the recent (since ~6 Ma) incision of the canyon occurred, but the magnitude of incision was insufficient to reveal younger AFT cooling ages below an exhumed Partial The Late Miocene canyon incision coincides with an increase in sedimentation rates recorded in the lower Magdalena Valley Basin to the north and suggests that the basin has been the sink for the Cauca River sediments at least since the Late Miocene.

***This is a FREE virtual event—Please register through the CNYAPG website
Zoom access instructions will be provided via email to registered attendees on the day of the presentation***

Next virtual meeting - May 2021

CNYAPG Monthly Newsletter
April 2021

CNYAPG Newsletter

The CNYAPG Newsletter is a monthly publication of the Central New York Association of Professional Geologists dedicated to sharing upcoming events, delivering regular articles of interest and providing the Membership a forum for discussion.

The newsletter is prepared by the Officers and Board of Directors of CNYAPG (listed below).

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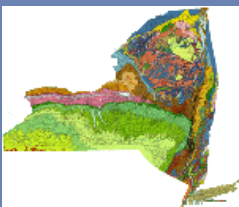
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President's Message– April 2021

March was another good month and I am optimistic about April and May. We all know spring has sprung, and warmer weather is just around the corner. If we all continue to observe social distancing, mask-wearing, and handwashing, we could see the end of this pandemic by the end of the year, but if we don't, we could be back to how it was last December.

I want to thank Dr. Alka Singhal of the Ramboll Group for her March 17th presentation on her novel approach to back-diffusion modeling of Perchlorate in Groundwater. Everyone in attendance found her hydraulic model for the movement of perchlorate in the alluvium aquifer very interesting. I also want to acknowledge again Danielle Minnick of Syracuse University, this year's recipient of CNYAPG's Earth Science Student Research award. Because of Covid, Danielle could not conduct some of her planned work. Danielle showing (in my opinion) great integrity, not only informed CNYAPG that she was not able to conduct her research as planned, but also returned the unused portion of her award. I believe this show of professional integrity should be acknowledged. I think this illustrated what type of geoscientist she is becoming.

I like to try to make these letters both informative and motivational. I was planning to talk about the eruption of the Fagradalsfjall Volcano in Iceland, the magnitude 7.0 Japanese earthquake that struck on the 20th, and the Perseverance rover on Mars gearing up to deploy the first human-made flying machine on another world. Instead, I will opine on Geoscience career education in New York State. You may remember that last fall I made a "call to action" plea. I asked you to volunteer your time and support the Geosciences in any way you could. Geoscience education in our local schools is something that affects all of us.

High School guidance counselors in New York State do not appear to treat all sciences the same. High School guidance counselors are aware of the professional career paths for Biology, Chemistry, and Physics, however, most appear to be unaware of the career paths for Earth Science. Guidance counselors and parents know that Biology, Chemistry, and Physics can lead to professional careers in the medical and engineering fields. Most don't know what exactly Earth Science courses are a pathway to, either in college or afterwards. Most have an idea it could lead to a possible career as an Earth Science teacher or if the student is lucky, being a Meteorologist hosting the evening weather on television (Not that there is anything wrong with either of these careers). Most counselors and parents in the state are unaware that Geology is a licensed profession in the State nor what the wide-range of available careers in geosciences are (Forensic Geologist, Marine Geologist, Mineralogist, Glaciologist, etc.) We all need to work to change this. High School Earth Science students feed the Geosciences Departments at our state colleges and universities. Those college and university graduates are the entry-level geologists going to work at the geotechnical and engineering firms across the state. So, if you have children in Junior High School or High School you should contact

President's Message (continued)...

your child's school and ask if you could speak to the students on the science of Geology and career paths in Geology. If you don't wish to give a talk on being a geoscientist to students, please contact me or another CNYAPG board member and we would be happy to do it. We all know that a career as a geoscientist is *la vida loca* but I venture to bet that very few of you would choose a different career knowing what you know now.

Just in case you need a few selling points, according to the U.S. Department of Labor Statistics, the median annual salary for a geoscientist was \$92,040 in May 2019. The average salary for a geologist in New York State is \$67,000 as of February this year. As of January 1st, there were 1,248 NYS licensed Geologists, 554 from the other U.S. states, and 5 from other countries. In the central New York region, there are two in Cayuga County, six in Cortland County, eleven in Madison County, one in Oswego County, and a whopping 49 in Onondaga County. Only Suffolk, Saratoga, and Erie counties have more licensed professional geologists than Onondaga County.

Since last July SUNY Geneseo, SUNY New Paltz, SUNY Brockport, and SUNY Plattsburgh have become certified Geology programs that can lead graduates to a license to practice geology in New York State. These programs join the list of programs that strengthen the geotechnical and engineering economies in the state. As I did last fall, I urge all of you who have earned a geology degree in New York State to contact your alma mater(s) and ask them if their program(s) are going to become a certified program. Graduates from certified programs will have the academic background to sit for the Fundamentals of Geology (FG) part of the ASBOG (National Association of State Boards of Geology) exam. The ASBOG is required in 32 states including Puerto Rico to become licensed as a Geologist. Two additional states Michigan and Iowa require only the Fundamentals of Geology (FG) Examination.

In conclusion, I would like to invite you all to support CNYAPG by attending our free Virtual Monthly Meetings via Zoom. This month's meeting scheduled for April 21st will feature Nicolás Pérez-Consuegra our 2020 CNYAPG Scholarship award winner from Syracuse University. I would also like to remind the members in good standing to participate in the election for the CNYAPG board of directors.

As I have in the past I want to end with a quote. A few words from the past I think can help us during these strange times. "Education is the passport to the

future, for tomorrow belongs to those who prepare for it today."

Keep the faith.

Calvin K. Prothro; P.G.
President of CNYAPG

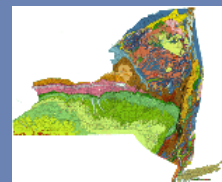
CNYAPG Governance

Membership Renewal

CNYAPG's membership period follows the CNYAPG meeting year from September through August. Renewals are due in September. To renew or become a new member, simply complete the membership form, available on our website at www.cnyapg.org. Membership is only \$25 per year and all money received is used in support of our organization.

Join CNYAPG at our social networking groups on [Facebook](#) and [LinkedIn](#). These sites (always under development) will provide online forums for discussion, as well as another way to inform our members and networking opportunities. For more information about our social media sites e-mail us at admin@cnyapg.org.

The CNYAPG was founded in 1993 to strengthen and advance the geological sciences. CNYAPG conducts regular meetings on the third Wednesday of each month from September to May. Meetings feature dinner and distinguished speakers whose presentations invite comment and discussion.



www.cnyapg.org
www.twitter.com/cnyapg

CNYAPG ELECTIONS

Annual elections for the CNYAPG Officers and for Board members will take place via virtual ballot during April– please keep an eye out for a link in your email. Please contact Calvin Prothro(prothro@sunyocc.edu) or Sean Pepling (spepling@pwinc.com) with any questions.

Programming Note & Upcoming Events

As noted previously, CNYAPG has temporarily transitioned to a virtual Zoom platform beginning with the October 2020 meeting.

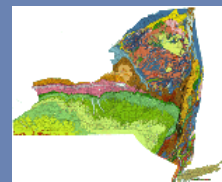
April 21, 2021 6:00 PM– CNYAPG– *2020 Scholarship award winner*
Nicolás Pérez-Consuegra – Syracuse University
Virtual Meeting– www.cnyapg.org

May 19, 2021 6:00 PM– CNYAPG– *Topic TBD*
Dr. Joe Levy– Colgate University
Virtual Meeting– www.cnyapg.org

We Need Your Input!

Do you have ideas of creative ways to engage members during this unprecedented time?

Interesting experiences to share? Email thoughts and ideas to prothro@sunyocc.edu



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