



**UC DAVIS**  
Institute of the Environment



ClimateMusic.org

# The Institute of the Environment Presents ClimateMusic



***Climate* composed by Erik Ian Walker  
in collaboration with  
The ClimateMusic Project**

**December 4th, 2024**

# CREDITS



## **Composer**

Erik Ian Walker

## **Musicians**

Erik Ian Walker, keyboards

Michèle Walther, violin

Thomas Dimuzio, synthesizer and live sampling

Scott Brazieal, keyboards

## **Science Advisors**

Dr. William Collins, Lawrence Berkeley National Laboratory  
& University of California, Berkeley

Dr. Andrew Jones, Lawrence Berkeley National Laboratory

## **Animations/Video**

Kinetech Arts; FXPAL; Dr. Andrew Jones

## **Production and Management**

Stephan Crawford, ClimateMusic Founder and Executive Producer

Fran Schulberg, Executive Producer

## **Graphic Design**

Charlotte Saunders

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*For more information about **The ClimateMusic Project**,  
and to learn how to support our work, please visit:*

website: [www.ClimateMusic.org](http://www.ClimateMusic.org)

linkedin: [linkedin.com/company/the-climate-music-project/](https://www.linkedin.com/company/the-climate-music-project/)

facebook: [theclimatemusicproject](https://www.facebook.com/theclimatemusicproject)

instagram: [theclimatemusicproject](https://www.instagram.com/theclimatemusicproject)

email: [info@climatemusic.org](mailto:info@climatemusic.org)



- **Introduction to The ClimateMusic Project**  
Stephan Crawford, Executive Producer and Founder, The ClimateMusic Project
- **Introduction to *Climate* and the science behind the score**  
Isabel P. Montañez, Director,  
UC Davis Institute of the Environment
- **Introduction to *Climate* from a music perspective**  
Sam Nichols, Chair of the Music Department,  
UC Davis
- **Performance of *Climate***
- **Panel Discussion and Audience Engagement**  
Professor Montañez, Professor Nichols and Erik Ian Walker, moderated by Professor Faloon



## **Isabel Patricia Montañez**

Isabel Patricia Montañez holds degrees in geoscience from Bryn Mawr College (B.S., 1981) and Virginia Polytechnic Institute (Ph.D., 1989). She was an assistant and associate professor in the Department of Earth Sciences, UC Riverside before joining the faculty in the Department of Earth and Planetary Sciences at UC Davis in 1998, where she is currently a Chancellor's Leadership Distinguished Professor. She serves as the Director of the UC Davis Institute of the Environment. Her research focuses on reconstructing past perturbations to global carbon cycling and regional climate change, in particular, during periods of warming and major transitions.

Isabel is a member of the National Academy of Sciences ('21), a fellow of several professional societies (AAAS, AGU, The Geochemical Society, European Soc. of Geochemistry, GSA), a past Fellow of the John Simon Guggenheim Memorial Foundation and a Fellow of the California Academy of Sciences, as well as the recipient of multiple national and international awards and medals (Arthur L. Day Medal, Jean Baptiste Lamarck Medal, Francis J. Pettijohn Medal). She served as President of The Geological Society of America from 2017 to 2018 and is currently the Chair of the Board of Earth Sciences and Resources, the National Academies of Sciences, Engineering, and Medicine.



## **Ian Faloona**

Professor/Bio-micrometeorologist  
Department of Land, Air, & Water Resources  
University of California, Davis

Ian Faloona is a professor at the University of California at Davis. He studied physical chemistry at UC Santa Cruz, including summer research in computational chemistry at Los Alamos National Lab, and then earned a Ph.D. in meteorology from the Pennsylvania State University. For four years in between he worked as an air quality consultant with SECOR Inc. in Fort Collins, Colorado. Later, after a postdoc in the Advanced Study Program at the National Center for Atmospheric Research, he joined the atmospheric science faculty at UC Davis where he studies air pollution and atmospheric turbulence. Beyond academia, Dr. Faloona is an avid dancer, actively studying classical and Afro-Caribbean styles, as well as a student of Vajrayana meditation with a Tibetan Rinpoche. He has also studied Motion Theater, an improvised autobiographical theatrical style that is grounded in physical movement and mindfulness. In 2021 he co-created an 8-member one-time live performance on goat rock beach in Jenner, CA entitled "Coastal Fog: Part I, Fire", a collaboration between environmental science and movement art.

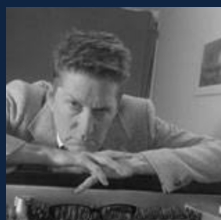




### **Sam Nichols**

Professor of Teaching, University of California, Davis  
Chair of the Music Department, University of California, Davis  
Focus: Composition, Theory, Analysis, Electronic Music  
Sam Nichols is a composer who lives and works in California. He attended Vassar College (AB 1994) and Brandeis University (PhD 2006). His composition teachers include Ross Bauer, Eric Chasalow, Annea Lockwood, David Rakowski, Richard Wilson, and Yehudi Wyner. He also studied analysis with Marty Boykan, and guitar with Terry Champlin. Since 2002 he's taught in the UC Davis Department of Music; his subject areas include undergraduate and graduate courses in composition, music theory, and electronic music. He's received commissions from a number of ensembles and organizations, including the Fromm Music Foundation at Harvard University, the Left Coast Chamber Ensemble, Earplay, the Empyrean Ensemble, and the Composers Conference. If you'd like to learn more about his music, please visit [samnichols.net](http://samnichols.net).

## ***Band Members***



### **Erik Ian Walker (Composer, Producer, Keyboardist)**

Erik has been writing and recording music for theater, dance, and film in San Francisco since 1982. He has released 10 albums, the most recent of which is the Erik Ian Walker Quartet debut album, with two retrospective albums released before that (including *Music for Modern Dance*). He is omnivorous about style and has crafted an attractive synthesis of his influences, creating a truly identifiable sound. A long-time Bay Area keyboardist, Erik has a unique take on the rock/blues/jazz song forms and styles, taking simple ideas and weaving them into more layered, complex adventures that can feel like a foreign film soundtrack but then burst into a powerful driving jam, without forgetting his tendency towards humor at unexpected moments. In 2021, Erik scored the soundtrack to "When We Were Bullies" by director Jay Rosenblatt, which was nominated for an Oscar in the Best Documentary Short Subject category for 2022. As a keyboard player, Erik put out 2 rock albums- *European favorites*- by his band, Castle Canyon, an intentionally retro-prog band (as if the band he had in 1974 in high school had been transported in time to now, and got to record and release their 'lost' album). Notable songs from these albums are *The Mighty Arp*, *Wiggy Beats*, and *Criteria Obsession/The Mushroom Song*. In 2019, he released *CLIMATE*, a 30-minute based on climate data that runs from the year 1800 to 2300 (a video showing this data accompanies the live performance). Done in collaboration with climate scientists from the UC Berkeley Climate Lab, *CLIMATE* has traveled the globe with the Climate Music Project ([climatemusicproject.org](http://climatemusicproject.org)), in an effort to illustrate, in a very different way, the climate crises. In 2021-22, he also scored the award-winning epic podcast trilogy "Miss Experience White" by Milo Johnson, released Zeke Nealy's posthumous *Traditional Haitian/Jazz/Spoken Word* album (including the poems of Poet Laureate of San Francisco Tongo Eisen-Martin), and continues to run the recording and teaching studio, WackoWorld Music, in San Francisco. Erik was born in Portland, Oregon, and studied with Composers John Adams and Alden Jenks at the San Francisco Conservatory of Music...way way way back there in the beforetime. Visit his website at [www.wackoworldmusic.com](http://www.wackoworldmusic.com)



### **Michèle Walther (Violinist)**

Michele is a performer, composer, arranger, and educator from Switzerland and San Francisco. Michèle has performed in venues throughout Europe and North America with Ian Anderson/Jethro Tull, Gloria Estefan, Joe Lovano, Oscar Stagnaro (Paquito D'Rivera), John Cage, Basel Sinfonietta, Mark Feldman, Wolfgang Dauner, LaMuseMent, and more. Recent performances include Resonance at SFJazz Center and Yoshi's, and "A Living Tribute to Carla Bley" at SFJazz, where she was featured in "Birds of Paradise". You can find her compositions on many recordings, music festivals, and in the documentary "Not Without Us". In the Bay Area, Michèle can be heard with the Musical Art Quintet, Alchemist Jazz Quintet, Climate Music Project, Jazz Mafia Strings, Resonance Jazz Octet, her solo & looper program, and many others. Ms. Walther earned her M.M. at the Conservatory of Music in Basel, Switzerland, and later graduated from Berklee College of Music in Boston, majoring in jazz violin performance.



### **Scott Brazieal (Keyboards)**

Scott has been composing and performing various genres of experimental music for over 45 years, having been a central role of numerous recordings on such labels as Cuneiform Records and Recommended Records. He is a graduate of the San Francisco Conservatory of Music, where he studied composition with John Adams, among others. A veteran of several European tours with his own rock group, Cartoon, and later with the acclaimed avant-rock band, 5uu's, he has since settled down these past years finishing a solo album, "Songs from the Empire" and writing the film scores, (and co-writing the screenplays) for the independent films, "Beat the Shift" and "The Cedars".



### **Thomas Dimuzio (Synthesizer and Live Sampling)**

Thomas is a musician, composer, improviser, sound designer, mastering engineer, label proprietor, and music technologist based in San Francisco, California. His music is an immersive sonic journey, transporting listeners to otherworldly auditory realms. As Peter Marsh of the BBC describes, "His work has a narrative, filmic tug that will draw you into its dark corners, ears alert... brilliant and rarely less than entertaining." Dimuzio's recordings have been internationally released by labels such as ReR Megacorp, Asphodel, RRRecords, No Fun Productions, Sonoris, Drone Records, Record Label Records, Odd Size, and Seeland. Dimuzio has collaborated with a wide array of artists including Chris Cutler, Dan Burke, Joseph Hammer, Alan Courtis, Nick Didkovsky, Due Process, Voice of Eye, Fred Frith, David Lee Myers, Marcia Bassett, Alaric, ISIS, 5uu's, Matmos, Wobbly, and Negativland. His performances have graced notable venues and festivals such as the Angelica Festival Internazionale di Musica, San Francisco Electronic Music Festival, CCRMA at Stanford, Recombinant Media Labs Buchla Memorial, and the Ende Tymes Festival of Experimental Art and Liberation. His current Sculpting Electric series features compositions made using the innovative Buchla 200 series, also known as the Electronic Music Box. Dimuzio also hosted KPFA's Frequency Modulation Radio, featuring live on-air performances by sonic innovators exploring the fringes of music.

# HOW TO LISTEN TO *CLIMATE*



*Climate* is an original composition by Erik Ian Walker, in collaboration with the ClimateMusic Project. It was created to help audiences understand how our climate has changed in the last 200+ years, and what we might expect in the future. We have a choice: we can continue on our current path with potentially catastrophic effects or we can limit the consequences if we have the collective will to address climate change in the near term. We have the knowledge and technology to help ensure a healthy planet for our children and future generations if we choose to act now.

*Climate* was made by identifying four key indicators of climate change and assigning each of these a musical analog:

- Carbon dioxide concentration** is reflected in the *tempo* of the composition, with increasing amounts of CO<sub>2</sub> accumulating in the atmosphere causing the tempo to speed up.

- Near Earth atmospheric temperature** is represented by *pitch*, where a rise in temperature translates to detuning, increased dissonance, harmonic complexity and/or a simple rise in pitch.

- Earth energy balance** (the balance between incoming energy from the sun and outgoing heat from the Earth) changes are audible as *distortion*, ring modulation (a wobbly metallic sound), volume, and a general “unhealthy” unevenness of the atmospheric tone. The greater the imbalance, the greater the distortion and loss of natural harmonics.

- Ocean pH** is represented by *compositional form*. As the pH in the ocean drops (becomes more acidic), the compositional form degrades.

The music is not generated by the climate data. Rather, this original composition is affected, and changed, by what the data prescribe.

*Climate* follows two possible scenarios for the future. It predominantly tracks “business as usual,” in which we do little or nothing to rein in carbon emissions. This is projected to result in an approximately 9 degree Celsius rise in global temperature and catastrophic impacts by the year 2250AD. The second scenario (which is modeled briefly beginning in the year 2150) represents a more hopeful “2 degree” scenario under which society succeeds in reining in emissions during the first half of this century.

These two timelines are based on the simulations used by the Inter-governmental Panel on Climate Change (IPCC), a scientific body under the auspices of the United Nations. The way the music changes and the pace of change reflect the assessments of leading climate scientists from around the world, following a rigorous review process.

After a segment representing Earth’s pre-industrial state, the music is accompanied by synchronized visuals, including year-by-year animations showing the first three climate indicators: CO<sub>2</sub>, temperature, and Earth energy balance. From this point, each minute of the concert represents 25 years of our history from 1800AD to the present, and then forecasts our possible future.

# ABOUT UC DAVIS INSTITUTE OF THE ENVIRONMENT

The Institute of the Environment's mission is to understand, solve, and communicate urgent environmental, climate, energy, and health challenges using research, education, and public engagement with a deep commitment to environmental and climate justice.

Our work is motivated by collaborative action to produce knowledge and solutions to steward the environment, mitigate climate change, and sustain communities for generations to come.

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***To learn more:***     **<https://environment.ucdavis.edu/>**



# ABOUT THE CLIMATEMUSIC PROJECT



The ClimateMusic Project educates, inspires, and motivates diverse audiences to engage actively on climate change by creating and performing science-guided music and visual experiences to viscerally convey the urgency of taking action. Through music, we make climate science *personal and drive action*.

Our mission is to generate conversations about the climate crisis and solutions, and to motivate action by our audience members. Solutions to climate change exist; the challenge is to create the individual and collective will to take action.

**To learn more:**      [www.climatemusic.org](http://www.climatemusic.org)  
[info@climatemusic.org](mailto:info@climatemusic.org)

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## CLIMATE ACTION

It's our mission to inspire you to take action after hearing our climate-inspired music. We believe we are in a critical moment to shape the future of the planet, and we invite you to be part of the solution.

That's why we've created four Action Kits to help you get started today and sustain over time. Take your pick and download for more information on how to: start conversations, volunteer your passion, or vote and push changes. We also have some ideas for middle schoolers and high schoolers.

**Download our Action Kits here:**

