

Signal Tide

A sound and extraterrestrial radio installation

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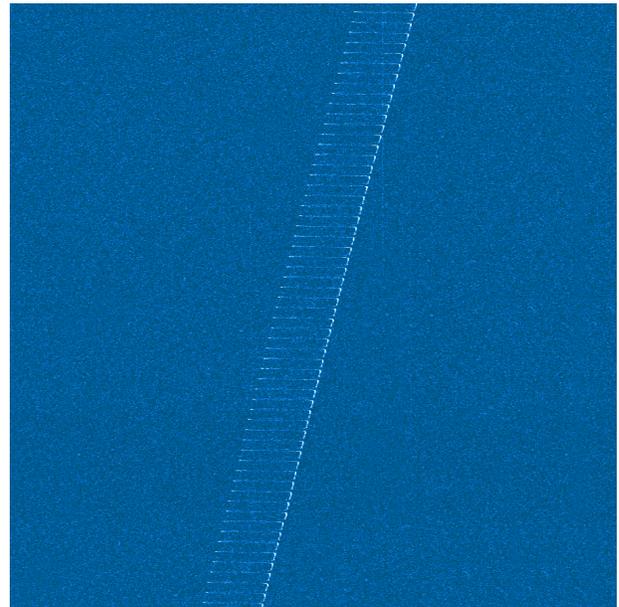
Signal Tide is a sound and extraterrestrial radio installation artwork by Kovács/O'Doherty. It combines real-time signals from an abandoned satellite currently orbiting the earth (the LES-1, launched in 1965) with specially commissioned music and sound, created by David Bryant (of Godspeed You! Black Emperor and Hiss Tracts), Drew Barnet, and James Hamilton, in collaboration with Kovács/O'Doherty. Technical assistance has been provided by Kris Slyka. *Signal Tide* is supported by the LACMA Art + Technology Lab.

About the work

Signal Tide is an installation that combines audio derived from the signal of the LES-1 satellite with a generative sound accompaniment based on sacred harp hymnal and singing melodies.

The LES-1 was manufactured in the early 1960s at MIT, in Boston, Massachusetts, and was launched in 1965. It functioned for the following two years, but then ceased to transmit signals in 1967, and was abandoned as Cold War-era space-junk. However, in 2013, signals from the LES-1 were unexpectedly received again, for the first time in 46 years. This resurrected spacecraft is still giving its ghostly signal (which can be received at 237MHz on any VHF antenna). The satellite is now also tumbling slowly around its own axis every few seconds as it orbits the earth—this means that it gives an unstable but steady signal, with distinctly perceivable gaps or dips, approximately every four seconds.

Signal Tide combines audio, derived from the live feed of the satellite's signal (received from an antenna mounted on the roof of LACMA), with a musical "answering" signal, in real time, as the satellite passes overhead above the site of the installation in Los Angeles. The LES-1, an artificial moon and a relic of a different era, will pull an earthbound tide of sound toward it in a fleeting duet as it passes overhead on its looping extraterrestrial pilgrimage.



Spectrogram image excerpt (approximately four minutes long) from the signal from the LES-1 satellite. The signal shows "dips" every few seconds, and also has a diagonal tilt due to the doppler shift of the frequency of the signal as the satellite crosses the sky above the observation point. Recorded in Stolzenhagen, Germany, in September 2016.

About the music

The music for *Signal Tide* has been specifically written and recorded for use in this work. The sound, as played in the work, is generative—it will never repeat in the same way, and so each pass of the satellite has its own unique accompaniment. The recordings feature contributions from David Bryant and Sophie Trudeau (of Godspeed You! Black Emperor), Drew Barnet, James Hamilton, a choir of Montréal sacred harp singers, and more—a full list is below. This generative musical accompaniment is derived from melodies used in sacred harp hymns and anthems.

Sacred harp singing is a distinct tradition of American and Canadian shape-note choral music, which has a centuries-long history as Christian sacred music, with distinct American “southern” and “northern” schools. One of the areas where the “northern” tradition is particularly strong is in Boston, as well as the wider New England area. As such, the LES-1 satellite, having been built in Boston, will be serenaded with music that is part of a folk tradition of a place which is, in an anthropomorphized sense, its home and point of origin. The satellite, having left Boston in 1965 and traveled ever since, can be considered as a weary pilgrim on a repeating journey, being sung to by music from its home, and singing back in return.

The lyrics of sacred harp songs often consider themes of ephemerality, hope, and transcendence. The metaphorical potential of these beautiful, haunting songs, as an accompaniment to the weary and lonely LES-1, has been an artistic point of departure in considering the musical elements of this work.

Time! what an empty vapor 'tis! Our days, how swift they are! Swift as a soaring arrow flies, Or like a shooting star.

Our life is ever on the wing, And death is ever nigh; The moment when our lives begin, We all begin to die.

—From the lyrics to *Fleeting Days* (sacred harp #348b)

Each pass of the LES-1 (during daylight hours and within antenna range of the site of the installation) lasts approximately 40 minutes. The installation is active only during these passes (listed at www.lacma.org/series/signal-tide). During these times, a row of overhead speakers will play the audio derived from the live signal of the satellite. Simultaneously, a series of ground-level speakers will play the unique, generative accompaniment, serenading the satellite as it passes overhead.

Music: Participants and contributors—David Bryant, Drew Barnet, James Hamilton, Sophie Trudeau, Patrick DeDauw, Xarah Dion, Philippe Doyle-Gosselin, Esther Wade, Elena Horgan, Collin Findlay, Tim Eriksen, Zoë Darrow, Kata Kovács, and Tom O’Doherty.

Technical development

Research and development work for *Signal Tide* has been ongoing over the last 18 months. The artists are deeply indebted to the assistance of Kris Slyka, without whom the project would not have been possible. The artists are very grateful for the assistance that they have received from Meharban Sobti, Lilian Haney, Jeremy Fields, Paul Weiss, Devin Williams, and Han Lin at SpaceX; Tom Spilker, Dan Goods, and Stephan Esterhuizen at NASA JPL; Scott Cutler at Southern Stars; and R. Kevin Nelson and Will Light.

About Kovács/O’Doherty

The work of Kovács/O’Doherty combines elements of durational and time-based art, minimalist sound and composition, video, and movement. This work often applies rigorous processes to simple but frequently-overlooked phenomena—they are interested in

processes, sounds, and movements that come close to imperceptibility, and the ways in which this material can be transformed through layering, rhythm, pattern, and repetition. Kata Kovács and Tom O'Doherty live and work in Berlin, Germany, and have worked as a collaborative duo since 2011.

About the LACMA Art + Technology Lab

Inspired by the spirit of LACMA's original Art & Technology program (1967–71), which paired artists with technology companies in Southern California, the Art + Technology Lab at LACMA supports artist experiments with emerging technology. Through our sponsors, the Lab provides grants, in-kind support, and facilities at the museum to develop new artist projects. To date, more than 20 artists from around the world, including Ghana, Ireland, Korea, Mexico, Switzerland, the United Kingdom, and the United States, have received awards through the Art + Technology Lab.

Links:

Event listings on LACMA's website—how to attend:	www.lacma.org/series/signal-tide
Website for the work:	www.signaltide.com
<i>Signal Tide</i> project research blog	www.medium.com/signal-tide
Kovács/O'Doherty website	www.kovacsodoherty.com
LACMA Art + Technology Lab	www.lacma.org/lab

The Art + Technology Lab is presented by:



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