

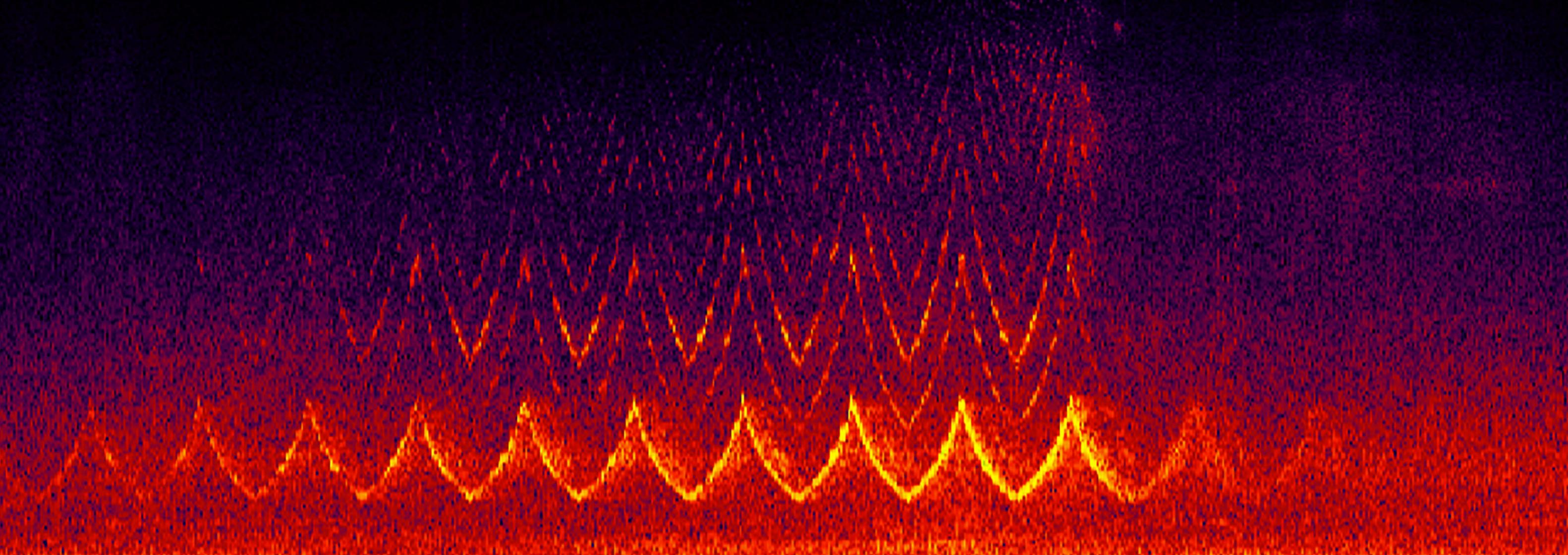
siren song

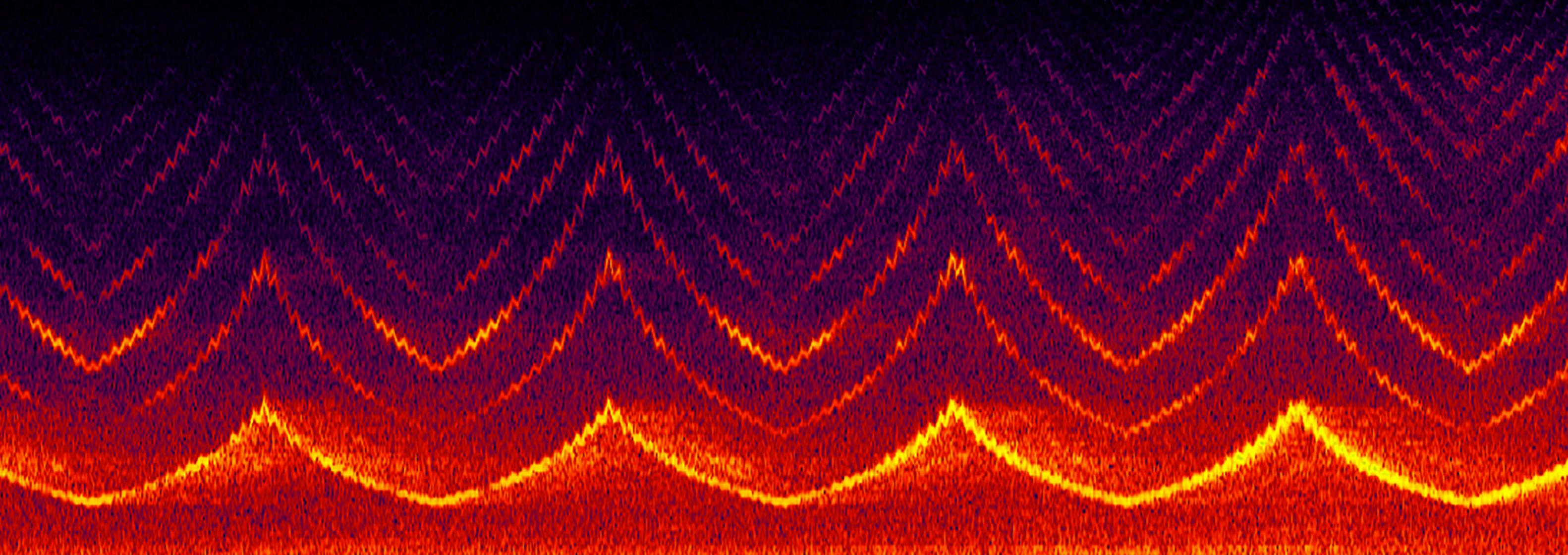


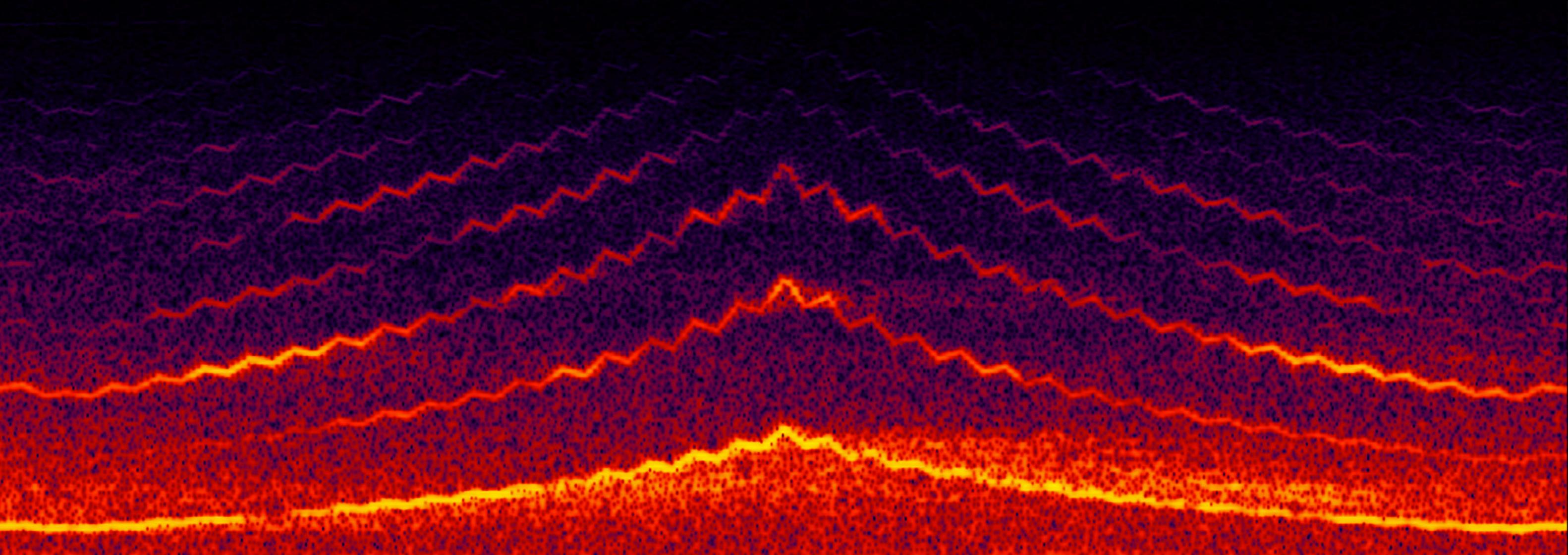
The sirens fitted to the emergency vehicles in Brussels have always been clearly present in the sonic environment, but since the recent terrorist attacks their presence is almost ubiquitous.

Like the calls of a bird or other territorial animal the sirens proclaim: I am here. This (street) is mine. Of course this is exactly the intention - a proclamation of the ownership of, or the right to use, the roadway above any other user. In claiming the street though, they perform a double territorialization by also dominating a large portion of the sonic spectrum.

The sirens, especially those that sweep up and down in frequency, cover a large part of our functional hearing range, particularly that which we use for listening to speech. The sweeps start usually at about 500 - 600 Hz in order for them to be heard clearly above the rumble of traffic. The upper fundamental frequency is usually about 1500 Hz, but the harmonics or overtones, audible when in line-of-sight of the vehicle, go up to about 8000 Hz. The volume that the sirens produce - 110 dB (measured at 3.5 meter in front of the vehicle) is apparently necessary to allow them to be heard over in-car sound-systems.





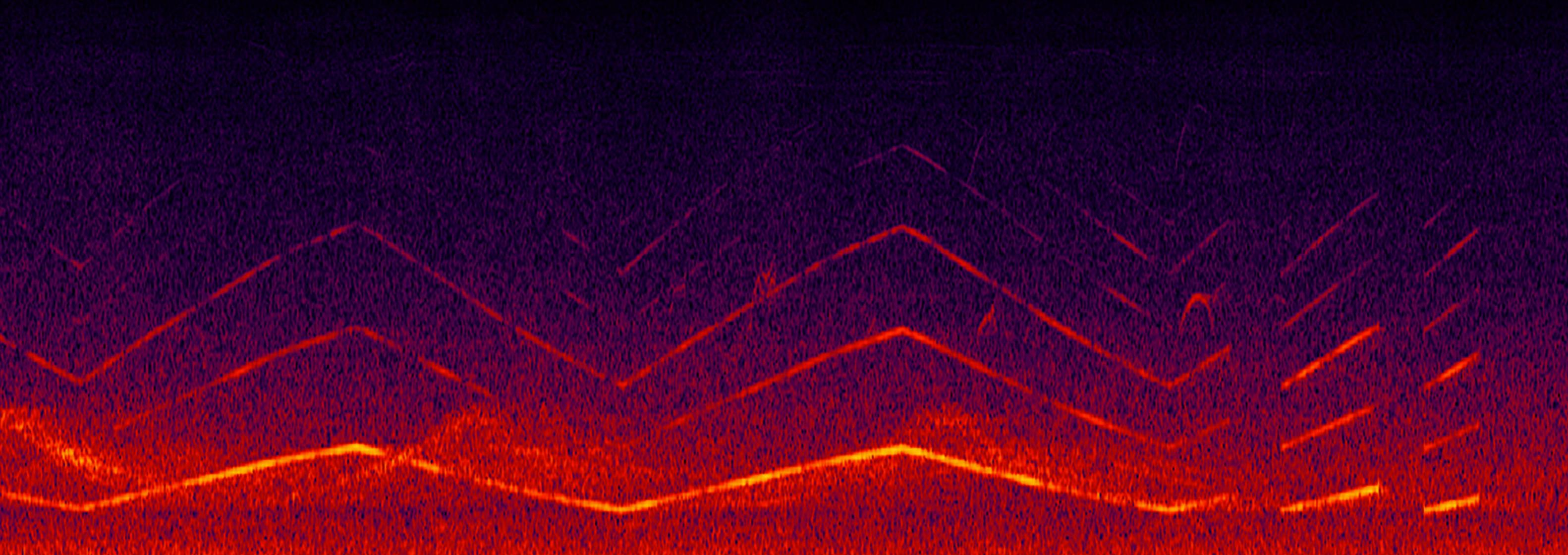


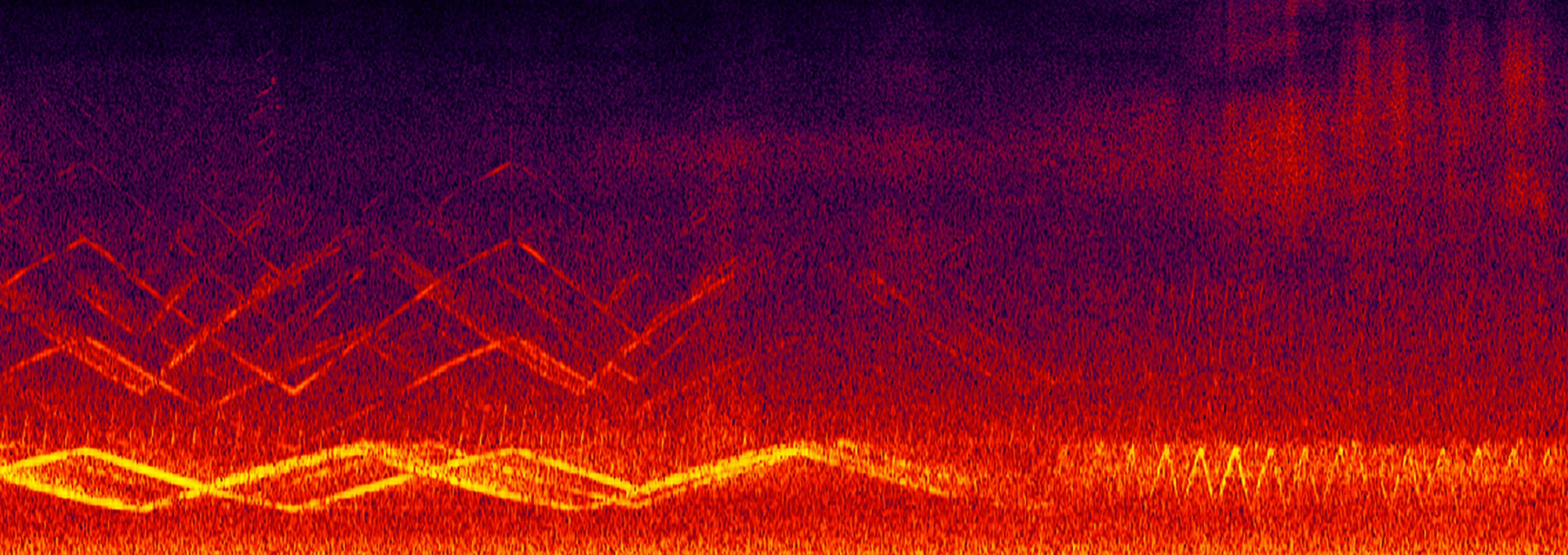
These images are “sonograms” made from audio recordings of sirens in Brussels. The different types of siren are clearly visible, as are the effects of the sound’s interaction with the urban fabric.

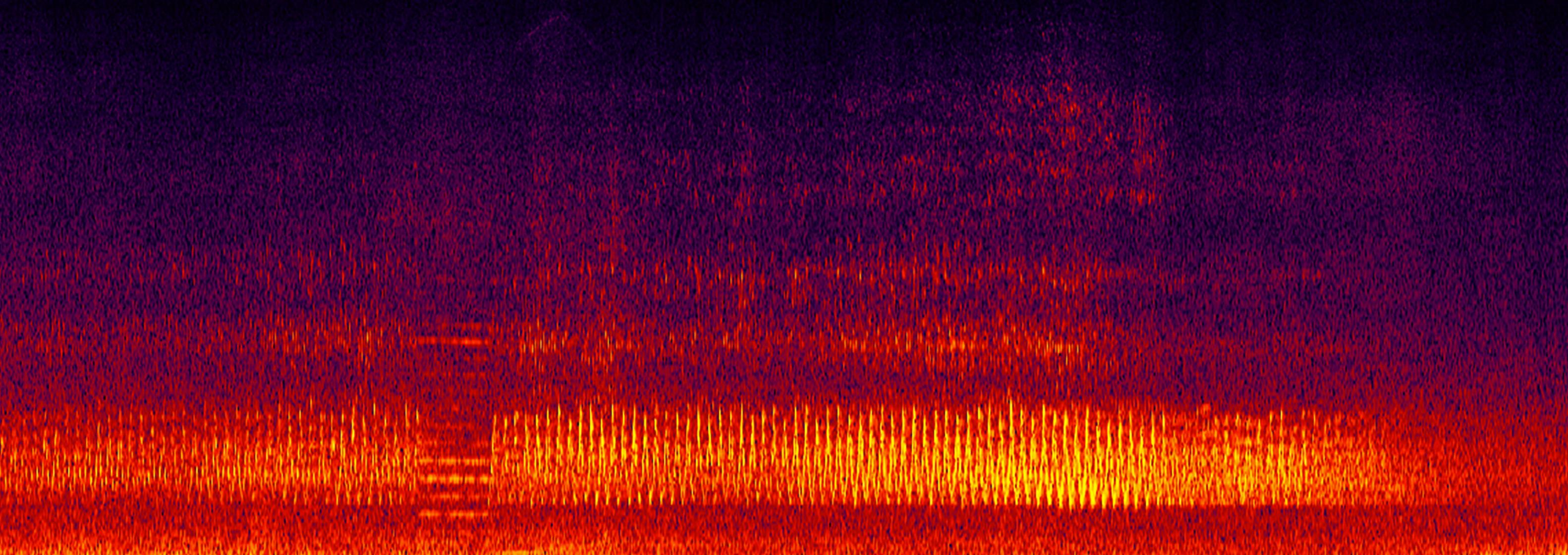
The gliding sound of the siren relates to the sinewave sweep of the “impulse response” - a measurement procedure to reveal the acoustic truths of spaces. In moving through the city using their sirens, the emergency services constantly scan the surrounding architecture, revealing echoes, reverberations, resonances and other effects.

When a siren passes us, especially when it turns a corner, the higher harmonics are suppressed and diffused. There is also a slight doppler shift (change in pitch) more noticeable with the two-tone “fire engine” horn.

The large glass facades of the office buildings reflect the sirens almost perfectly. When heard from a distance this has the effect of multiplying the sirens, shifting them in time and pitch to create the perception of a number of emergency vehicles instead of just one.

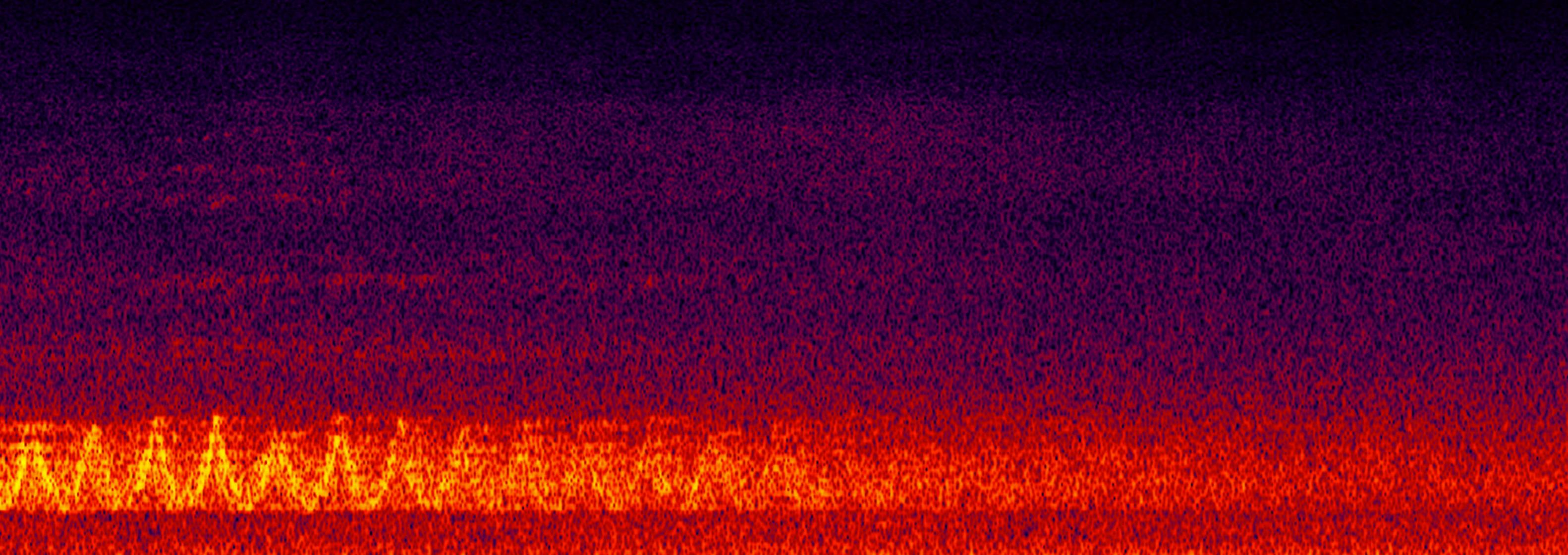






As the sirens recede into the distance, we hear less and less of the direct sounds and more reflections. This overlaying of copies of the “sweep” creates a layer of broadband noise. Indeed, the resulting sound is complex enough to be termed “noise” in a technical sense. This noise fades gradually into the other background sounds, but of course it never dies away completely - it is only gradually masked by the other sound sources. As there are in the city at any one time a number of sirens being used, the resulting sonic “siren fog” is a constant integral part of the soundscape.

The song of the siren is the song of the city.



Justin Bennett 2017

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