Mapping Key – Climate Data Sonification

Dataset Used

Global Climate Indicators Dataset (NASA GISS), 1958–2024

Selected Variables

1.Year
2.Annual Mean Global Temperature Anomaly (J-D)

Sonification Approach

This project converts long-term global temperature data into a musical composition, allowing listeners to perceive climate trends through sound.

Mapping Rules

1.Time → Rhythm
Each year in the dataset is represented by one musical note of equal duration, preserving the chronological order of the data.

2.Temperature → Pitch
The annual global temperature anomaly is mapped to musical pitch.
Lower temperature values produce lower pitches, while higher values produce higher pitches.
The temperature range is scaled to MIDI notes between C4 and C6.

3.Tempo
A constant tempo of 60 BPM is used to maintain a steady and neutral pacing, emphasizing long-term trends rather than short-term fluctuations.

4.Dynamics and Timbre
All notes are played at a consistent volume using a piano-like MIDI timbre to avoid introducing non-data-driven musical bias.

Outcome

The resulting composition reflects the gradual increase in global temperature over time through a rising melodic contour.

Tools used: Python (MIDIUtil, Pandas), Online MIDI player

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