

Model data and preprocessing

UKESM1
Model data in
NetCDF format

BGC-val
Python-based
model evaluation
toolkit

Time series shelves
BGC-val processed
output data

Legend

File
Box with thick border

Process
Arrow with no border

Earth system music processor

Convert to MIDI pitch
Uses data
range
provided

Apply smoothing window
Removes some of
the temporal
variability

Load shelf data
Access UKESM1
data as time series

Load settings
Includes data selection
criteria and artistic
choices

Earth system music processor settings
Python dictionary containing all
required settings, artistic choices
and paths to data.

Enforce scale or chord
Uses artistic
choice

Set MIDI velocities
Adjust note
loudness

Remove duplicate notes

Extend final note

Process MIDI and model data into images

Output notes as MIDI

Post-processing



Final video
Audio and video in mpeg format

Ffmpeg video processor
Combines
images and
audio to
produce
video

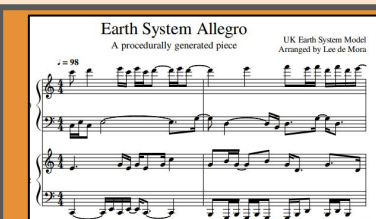
Video frame images
png format

MP3 audio
Performance by
piano synthesiser

Musical Instrument Digital Interface (MIDI) file

Timidity++ Piano player
Piano
synthesiser

Musescore
Loads MIDI as sheet
music.



Sheet music
pdf format