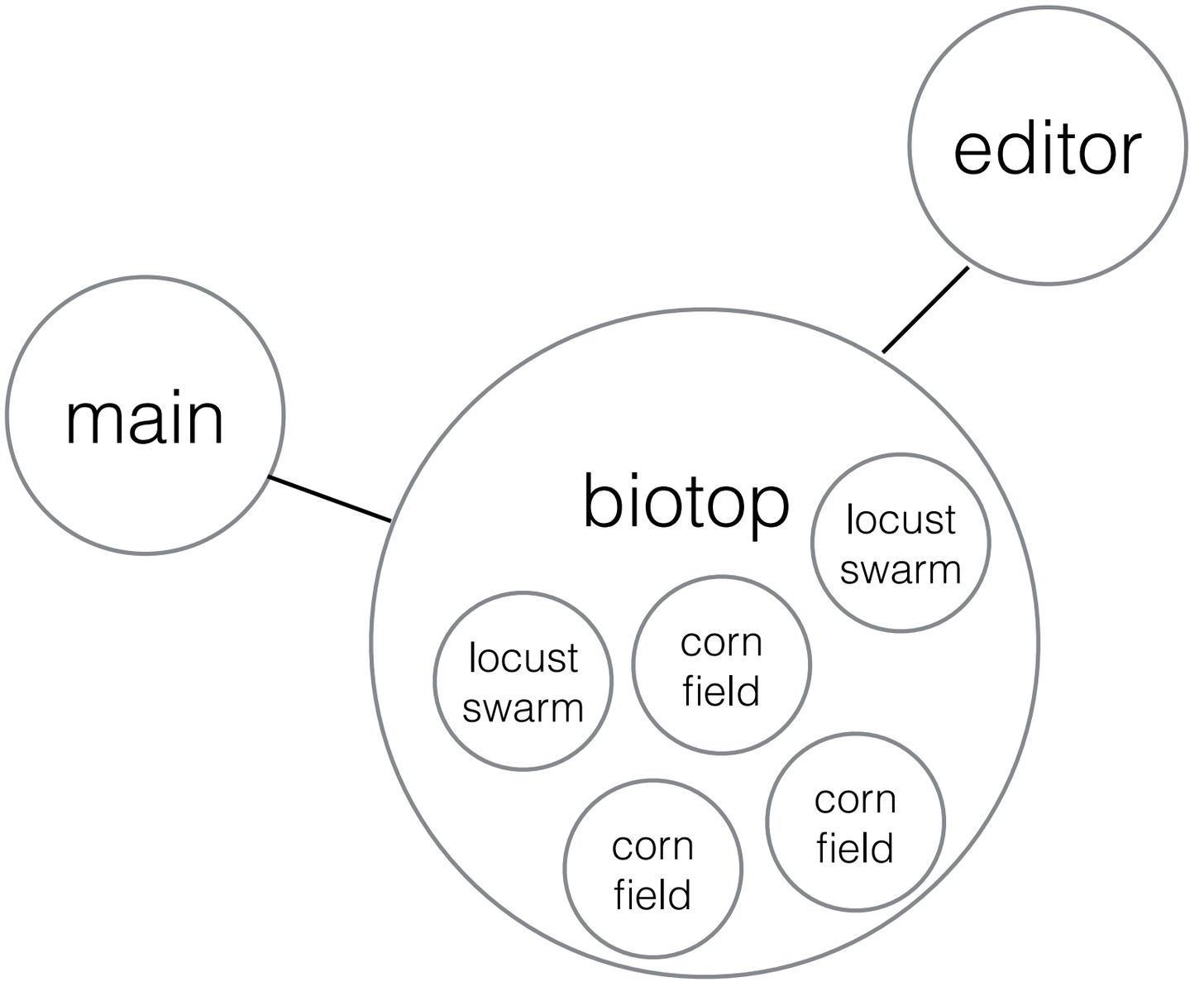
useful patterns for simulation

object orientation



creating a history

```
ArrayList<PVector> history;
```

creating a history

```
ArrayList<PVector> history;
int history_length;
```

creating a history

```
ArrayList<PVector> history;
int history_length;

setup() {

      history = new ArrayList<PVector>();
      history_length = 100;
   }
```

creating a history

```
ArrayList<PVector> history;
int history_length;

setup() {

      history = new ArrayList<PVector>();
      history_length = 100;
   }

draw() {

      history.add(new PVector(p.x, p.y));
      if(history.size()>history_length)
history.remove(0);
   }
```

Perlin noise

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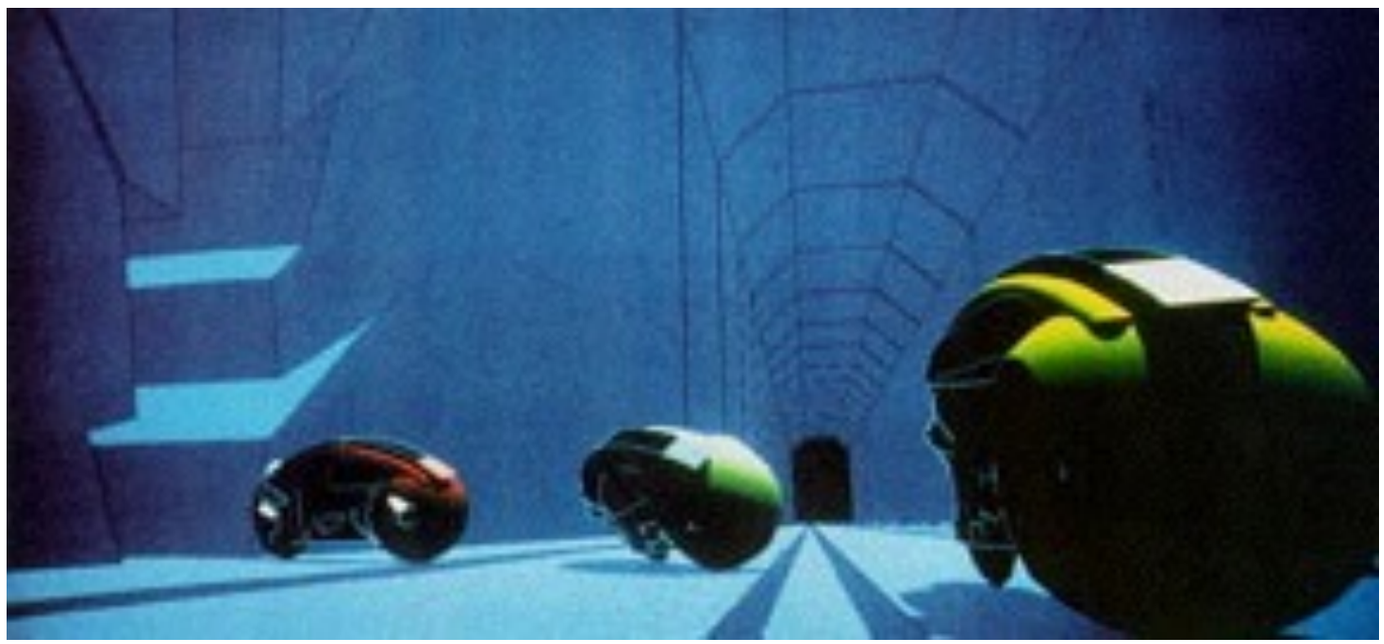
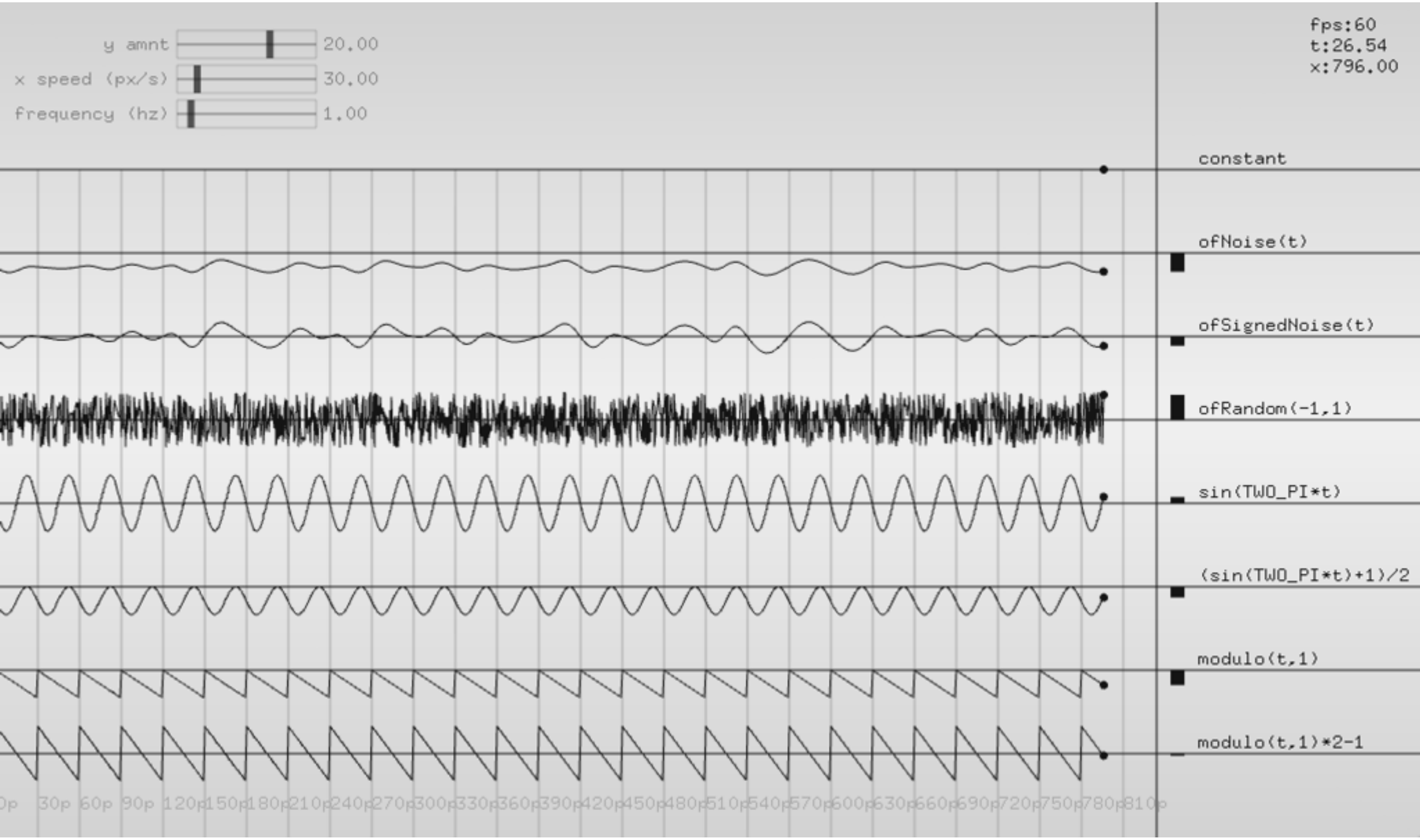
TRON 1983

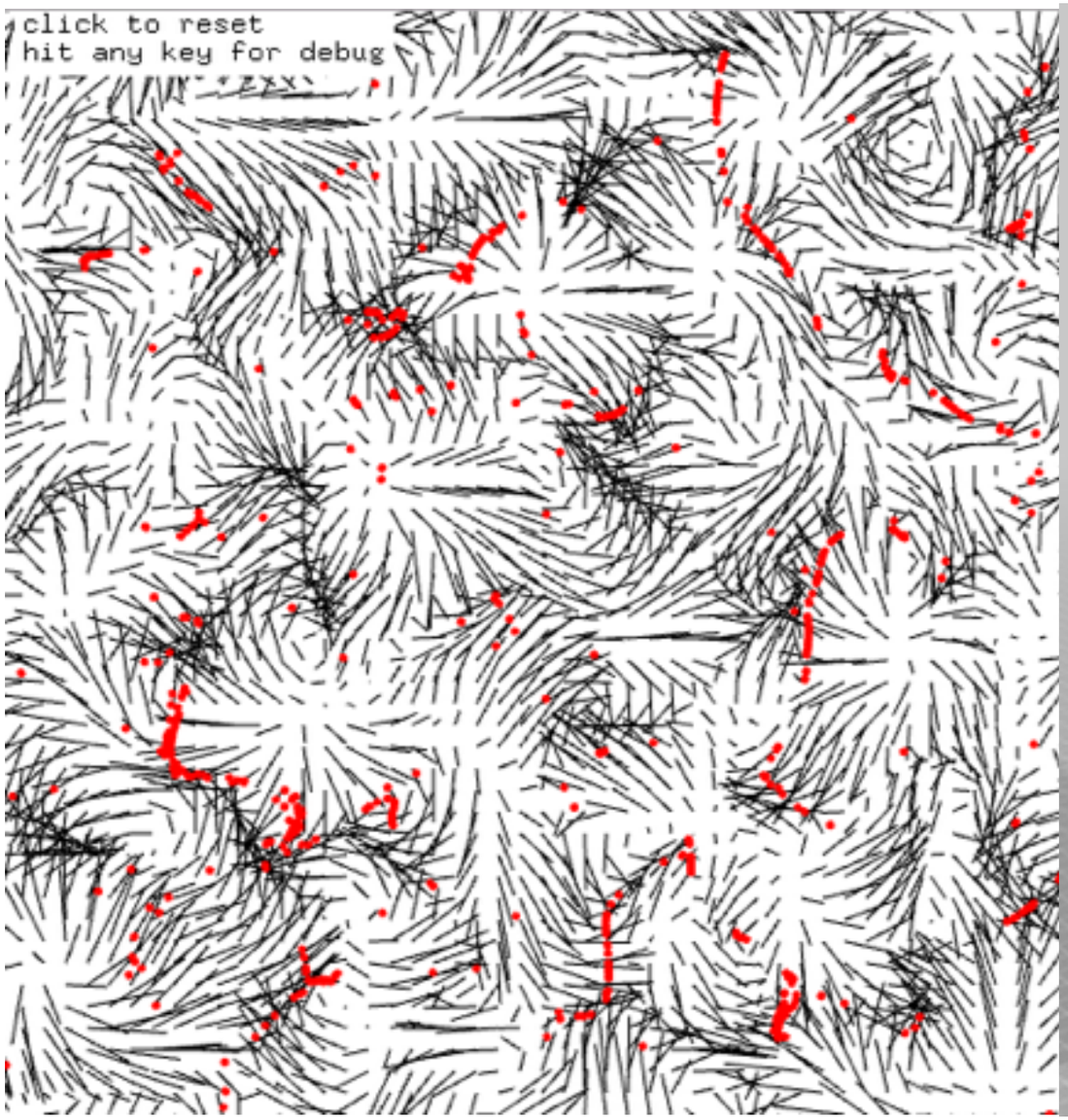


Perlin noise

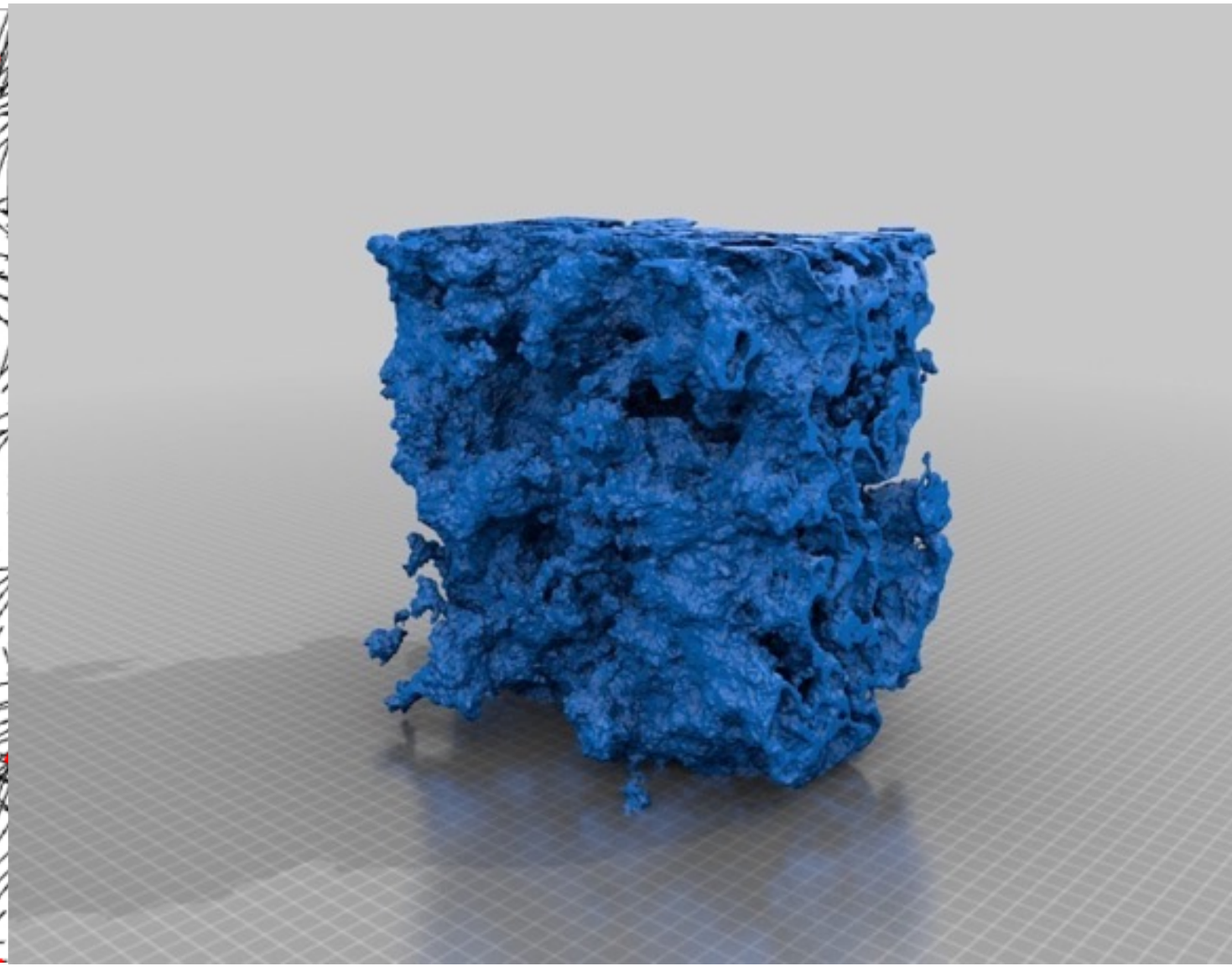


Perlin noise

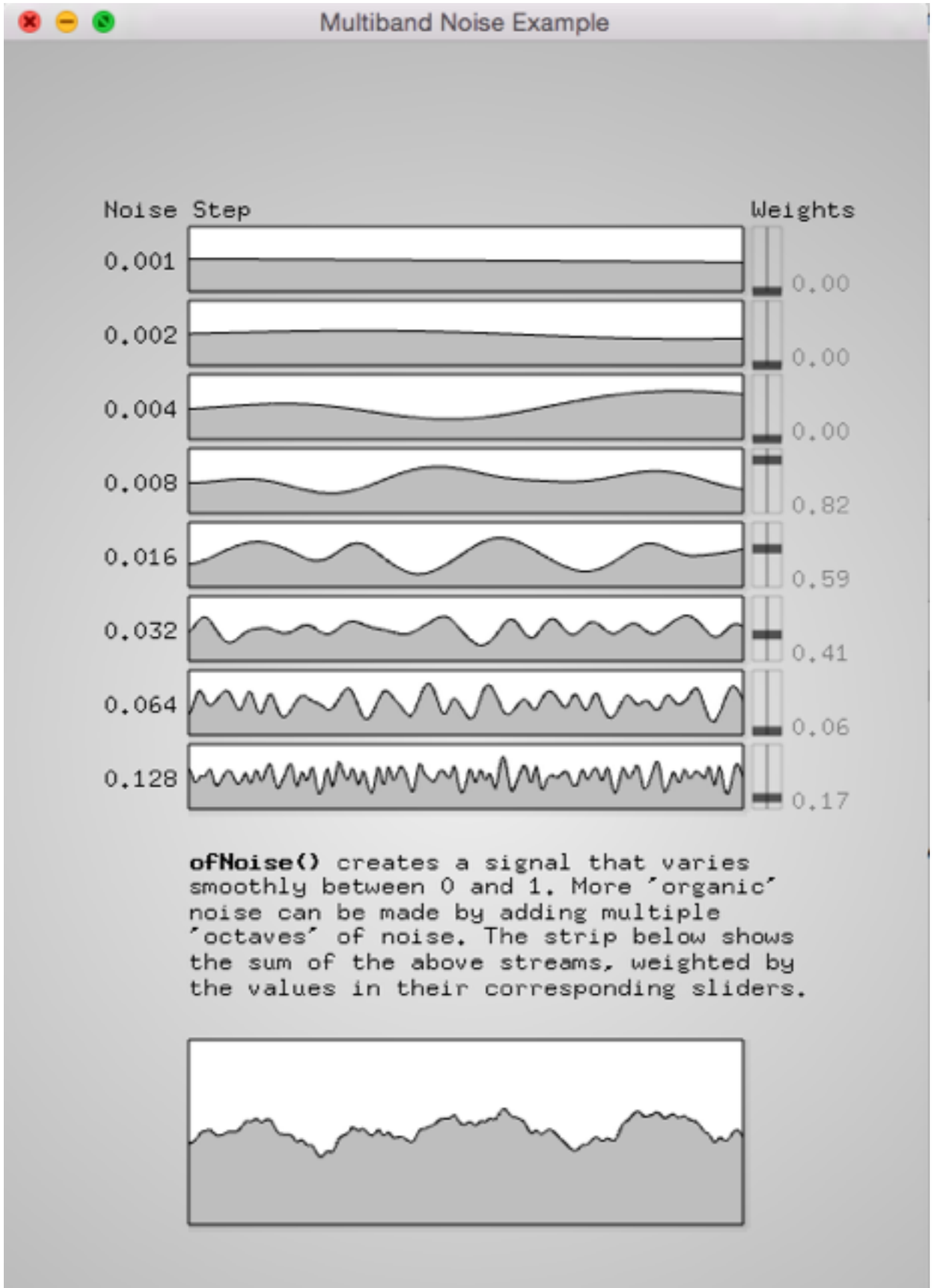
noise 2d



noise 3d



Perlin noise



Perlin noise

in processing:

`noise``(arg)`

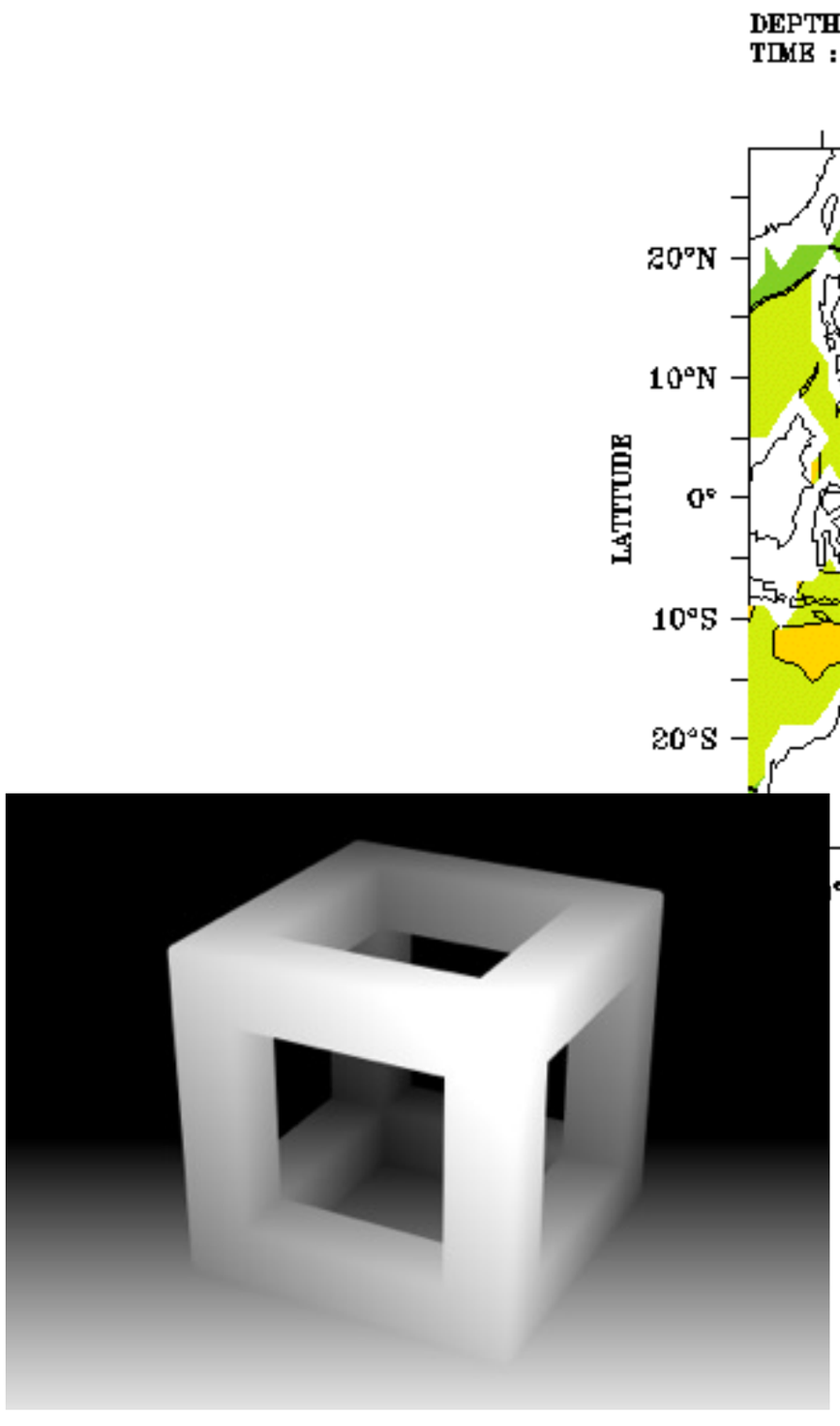
Perlin noise

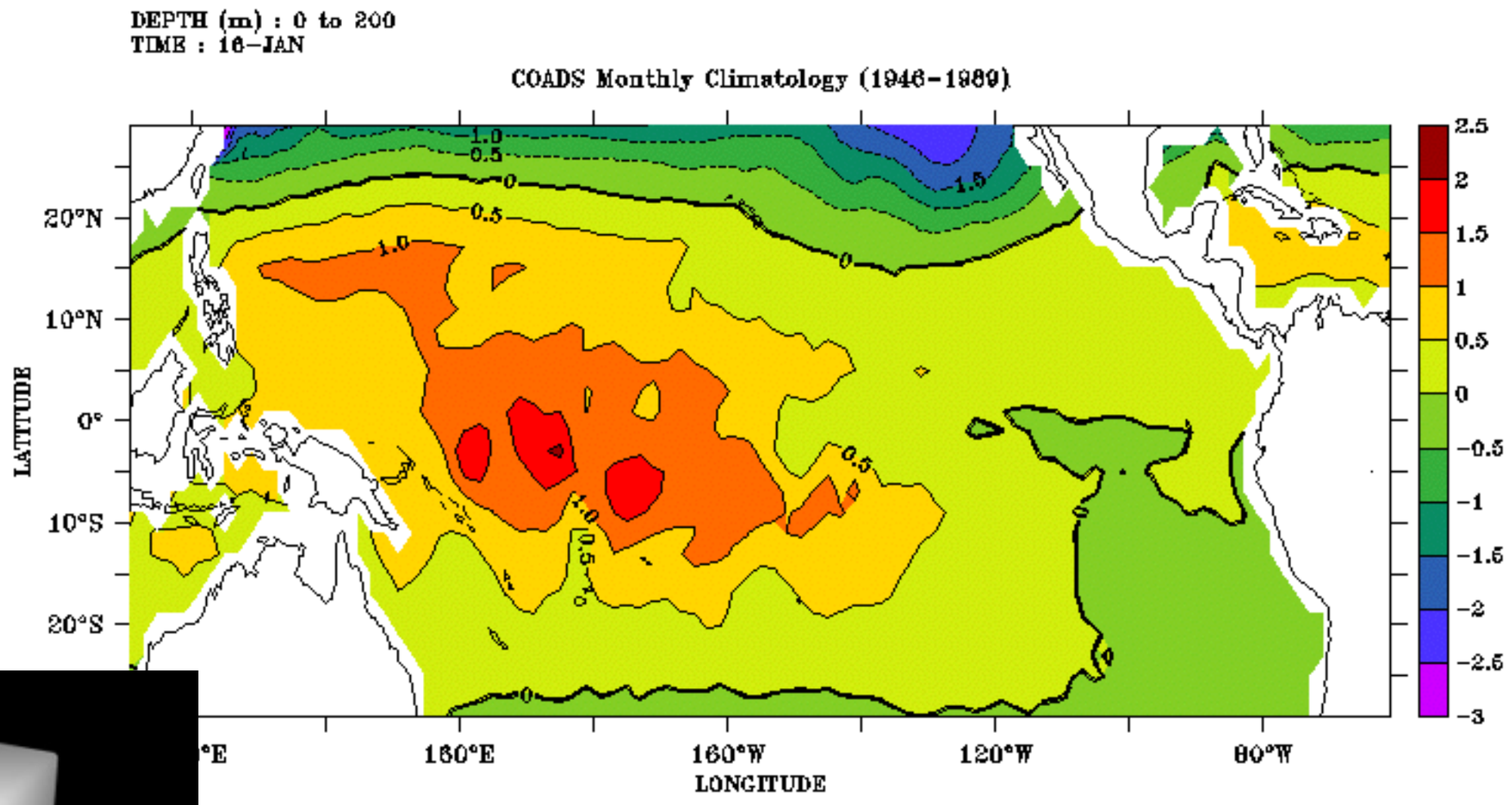
in processing:

```
// update position


val += 0.02;
direction.rotate((noise(val)-0.5)*0.05);
```

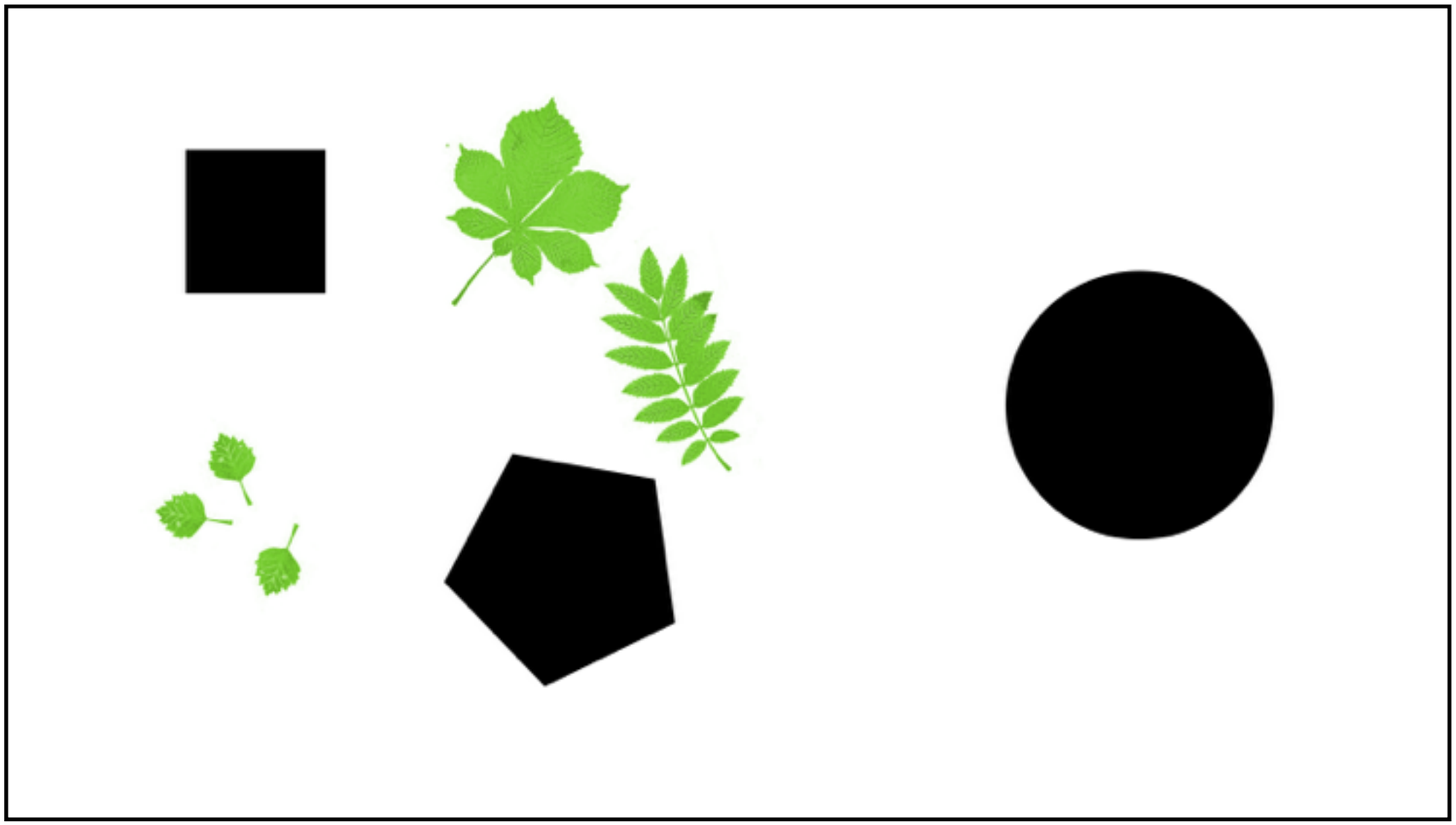
maps



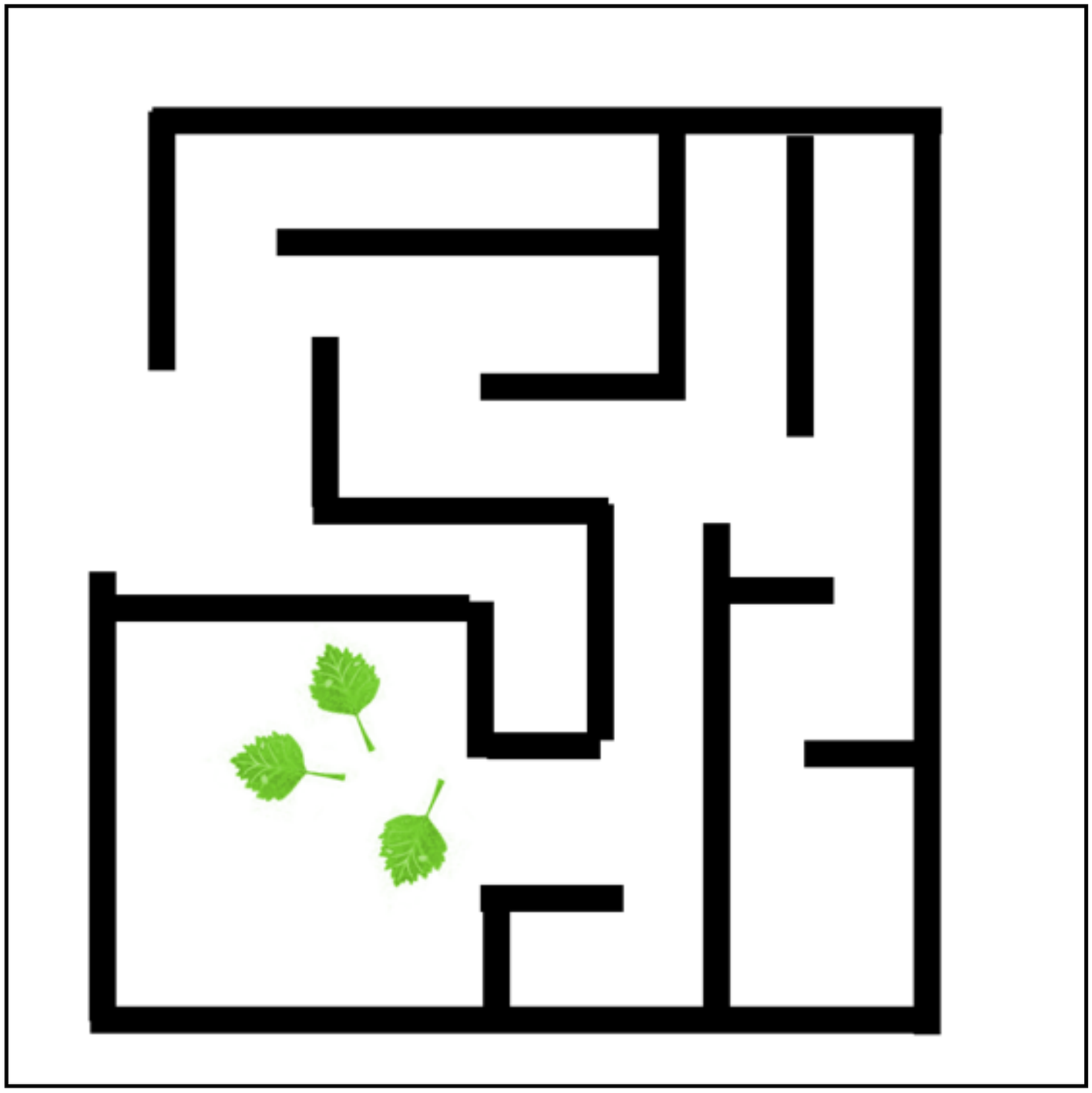


January Mixed Layer Heat (10^9 J/m^2)

maps



maps



maps

```
PImage map;

setup() {

      map = loadImage("test2.png");
  }

draw() {

      color test = map.get(x,y);
      if(good) map.set(x, y, color(255));
  }
```