UTOPIA documentation (to be translated to markdown)

Model Structure

OBJECTS

* Model box (UTOPIA)

Attributes:

Bname

Bdepth\_m

Blength\_m

Bwidth\_m

Bvolume\_m3

Bconexions

Compartments =[]

* Model compartments

Shared compartment class attributes:

Cname

Cdepth\_m

Clength\_m

Cwidth\_m

Cvolume\_m3

CsurfaceArea\_m2

particles = {"freeMP": [],"heterMP": [],"biofMP": [],"heterBiofMP":[]}

Each key corresponds to another dicttionary of size bins

connexions = []

UTOPIA\_water\_compartments = [

    "Ocean Surface Water",

    "Ocean Mixed Water",

    "Ocean Column Water",

    "Coast Surface Water",

    "Coast Column Water",

    "Surface Freshwater",

    "Bulk Freshwater",

]

Subclass specific attributes:

SPM\_mgL

waterFlow\_m3\_s

T\_K

G

flowVelocity\_m\_s

processess = ["discorporation","fragmentation","heteroaggregation","heteroaggregate\_breackup","biofouling","defouling","advective\_transport","settling","rising","mixing"]

UTOPIA\_soil\_compartments = [

    "Sediment",

    "Urban Soil Surface",

    "Urban Soil",

    "Background Soil Surface",

    "Background Soil",

    "Agricultural Soil Surface",

    "Agricultural Soil",

]

Subclass specific attributes:

infiltration\_capacity=0.25,  # from SimpleBox(4plastics)

precipitation\_rate=2.22 \* 1\*\*-8,  # from SimpleBox(4plastics)

soilPore\_waterVolume\_m3

processess = ["discorporation","fragmentation","runoff\_transport","tillage","percolation", "soil\_air\_resuspension"]

UTOPIA\_air\_compartments = ["Air"]

Subclass specific attributes:

wind\_speed\_m\_s

I\_rainfall\_mm

processess = ["discorporation","fragmentation","wind\_trasport","dry\_depossition","wet\_depossition"]

* Particles
* Particulates
* ParticulatesBF
* ParticulatesSPM

MODEL MODIFICATIONS

To add/change UTOPIA compartments go to compartments subclasses python file and add new compartment to the compartment list or water, soil or air compartment.

Add the compartment to the imput\_compartments.csv file

If new attributes are added to the class this have to also be added in the class definition in the compartmentsSubclassess.py file as None attribute.