

Instruction of Discharge Generate Model

1. Specifications

No	Item		Content
1	Package Name		McTestBasin.zip
2	Summary		<i>Discharge Generate Model</i> generates discharge based on formula which has peak discharge, base discharge, elapsed time at peak discharge and parameter regarding wave shape as parameters. This model can be used for element model development. BottomOut send port has both point time series information and one dimension time series information for send trans information.
3	Receive and Send Pattern	Receive Pattern	None
		Send Pattern	BottomOut Trans Information: Point Time Series Information or One Dimension Time Series Information Variable name: Discharge (m³/sec)
4	Property Information	Parameters	1) Time Step(sec) 2) Peak Discharge (m³/sec) 3) Base Discharge (m³/sec) 4) Elapsed Time at Peak Discharge (hr) 5) Parameter regarding Wave Shape
		state quantity	None
5	Remarks		None

2. Instruction

Discharge Generate Model generates discharge based on formula (1).

$$Q(t) = Q_b + (Q_p - Q_b) \left\{ \frac{T}{T_p} \exp \left(1 - \frac{T}{T_p} \right) \right\}^{C_p} \dots\dots\dots(1)$$

Q: Output Discharge

Q_p: Peak Discharge

Q_b: Base Discharge

T: Elapsed Time

T_p: Elapsed Time at Peak Discharge

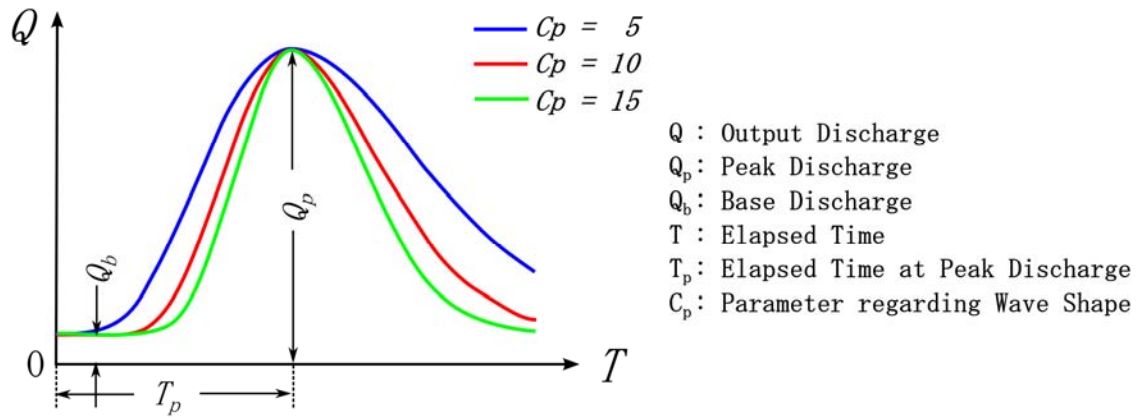


Fig. 1 Output Discharge generated by *Discharge Generate Model*

The larger parameter C_p is, the steeper wave shape becomes. (Fig. 1)

3. Usage

Parameters can be input from Parameter Setting Dialog Box which appears when Advanced Setting Button of Property Setting Form clicked.

Parameter Setting

Time Step:

72

(sec)

Parameters

Qp(m3/sec):

2000

(m3/sec)

Qb(m3/sec):

200

(m3/sec)

Tp(hr):

3

(hr)

Parameter(Cp):

10

$$Q = Q_b + (Q_p - Q_b) \left\{ \frac{T}{T_p} \exp \left(1.0 - \frac{T}{T_p} \right) \right\}^{C_p}$$

Q : Discharge
Q_p : Peak Discharge
Q_b : Base Discharge
T : Elapsed Time
T_p : Elapsed Time at Peak Discharge
C_p : Parameter regarding Wave Shape

Set

Cancel

Fig. 2 Parameter Setting Dialog Box

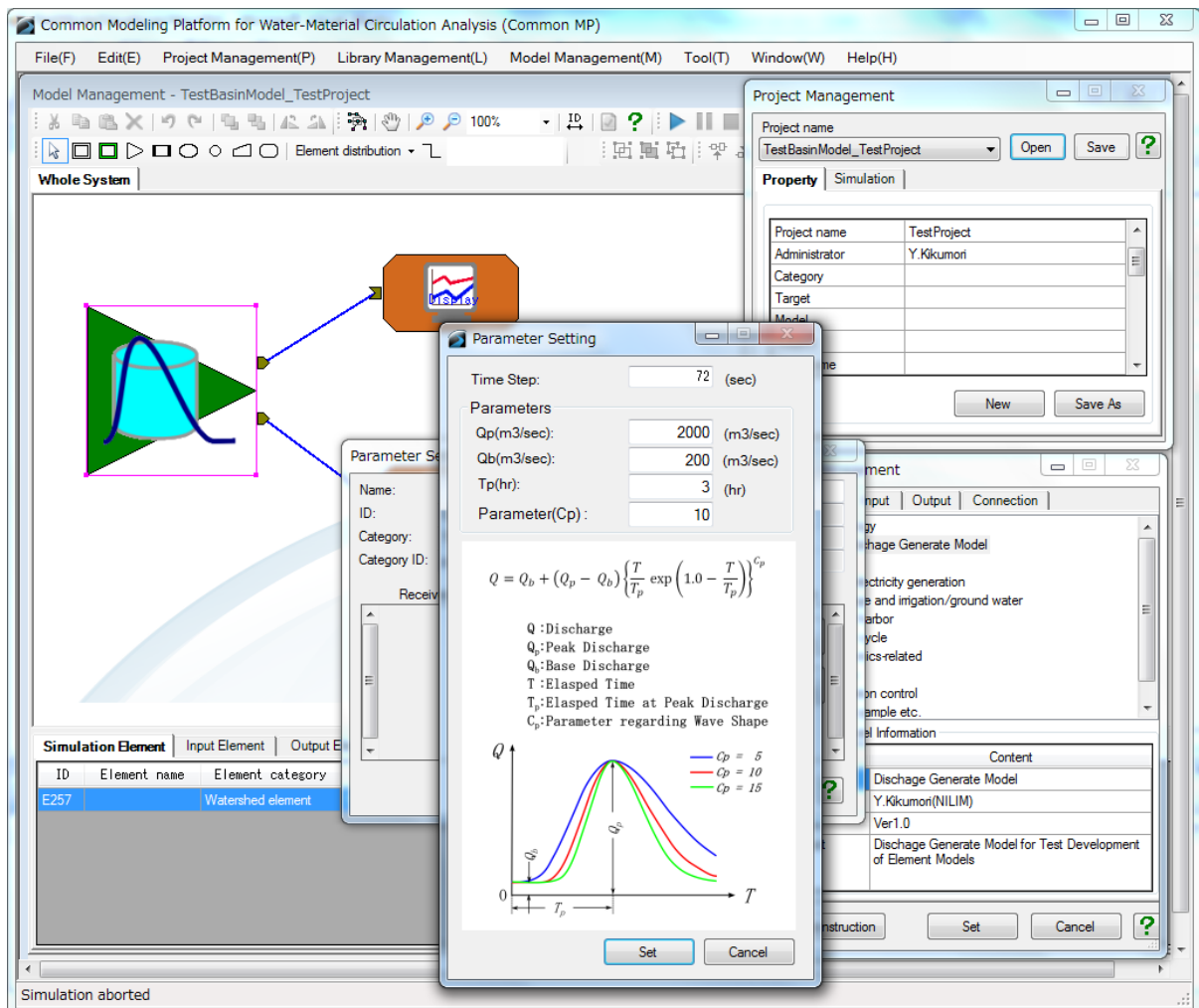


Fig. 3 Usage Example

4. Conditions of Usage

Modification of source code, Redistribution and Replication of this program are not restricted. Commercial use of this model is prohibited. Author of this program does not have any responsibility for disadvantages caused by this program.