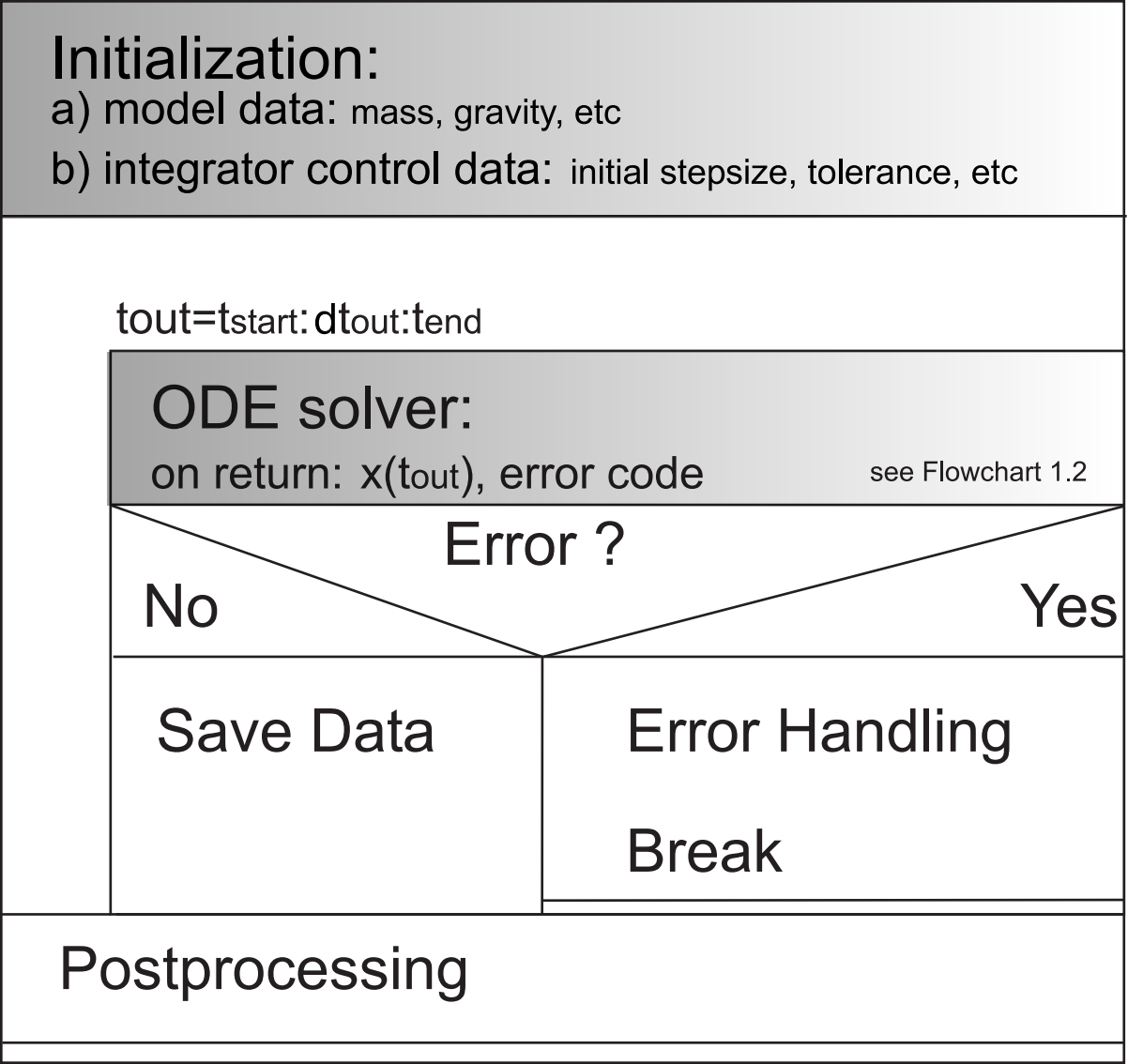
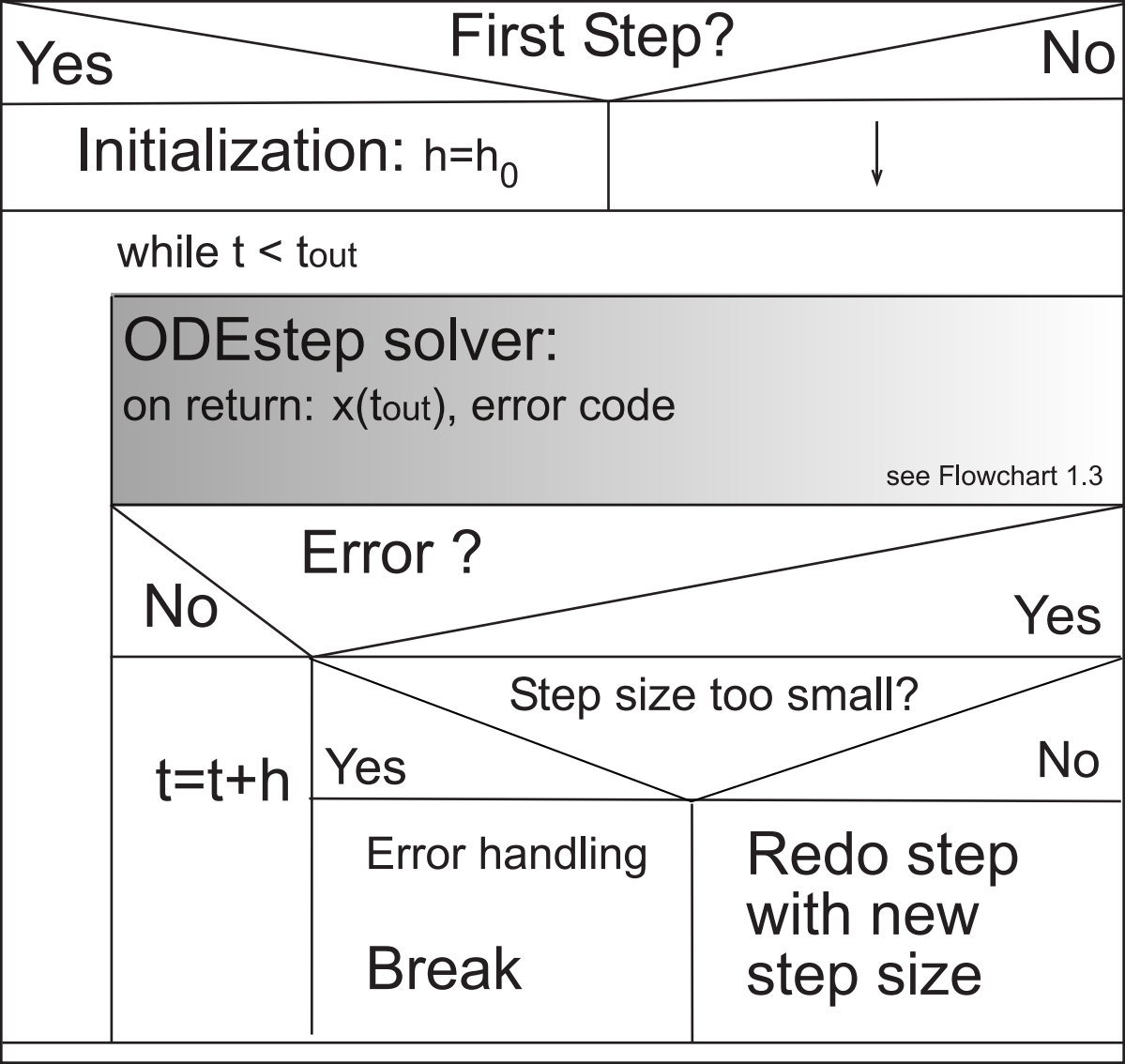
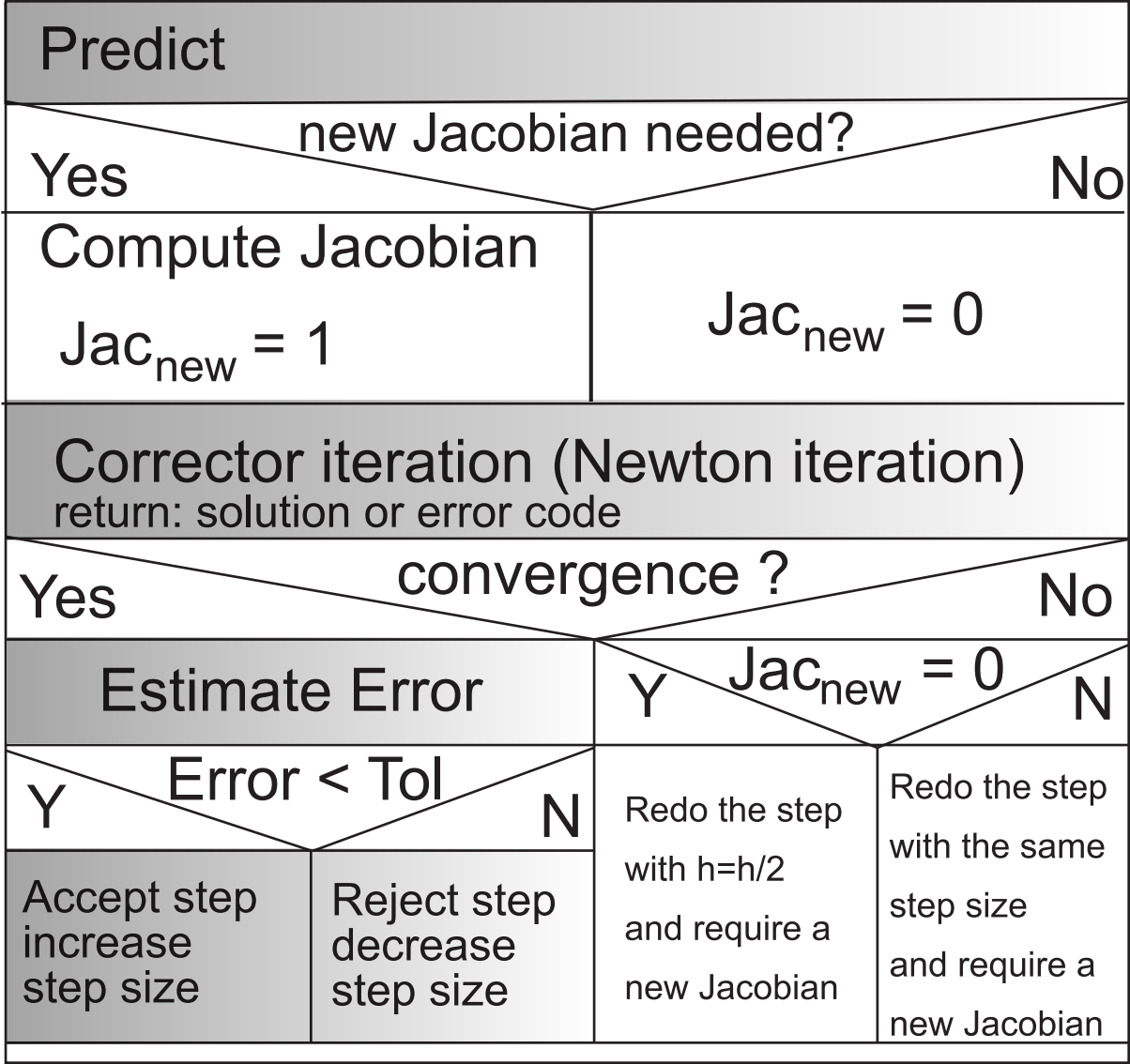

Initialization:
a) model data: mass, gravity, etc
b) integrator control data: initial stepsize, tolerance, etc
tout=tstart:dtout:tend
ODE solver:
on return: x(tout), error code
see Flowchart 1.2
Error ?
No
Yes
Save Data
Error Handling
Break
Postprocessing


First Step?
Yes
No
Initialization: h=h0
while t < tout
ODEstep solver:
on return: x(tout), error code
see Flowchart 1.3
Error ?
No
Yes
Step size too small?
t=t+h
Yes
No
Error handling
Break
Redo step with new step size


Predict
new Jacobian needed?
Yes
No
Compute Jacobian
$Jac_{new} = 1$
$Jac_{new} = 0$
Corrector iteration (Newton iteration)
return: solution or error code
convergence ?
Yes
No
Estimate Error
$Jac_{new} = 0$
Y
N
Error < Tol
Y
N
Accept step
increase
step size
Reject step
decrease
step size
Redo the step
with h=h/2
and require a
new Jacobian
Redo the step
with the same
step size
and require a
new Jacobian