

$h$	$f(k + h)$	$f(k - h)$	$\Delta f$	$\partial f / \partial Ki\_V(fw)$	$\partial f / \partial Ki\_V(cen)$
$10^{-1}$	3.005739317	3.016197976	-0.005193753785	-0.05193753785	-0.05229329691
$10^{-2}$	3.010524997	3.011209162	-0.0004080731649	-0.04080731649	-0.03420823387
$10^{-3}$	3.010766117	3.011098816	-0.0001669532485	-0.1669532485	-0.1663494157
$10^{-4}$	3.010916436	3.010949699	-1.663468046e-05	-0.1663468046	-0.166314468
$10^{-5}$	3.010931407	3.010934734	-1.663481024e-06	-0.1663481024	-0.1663424586
$10^{-6}$	3.010932904	3.010933237	-1.663416738e-07	-0.1663416738	-0.1663417715
$10^{-7}$	3.010933054	3.010933093	-1.663522919e-08	-0.1663522919	-0.1943578054
$10^{-8}$	3.010933069	3.010933078	-1.663869487e-09	-0.1663869487	-0.4464382197
$10^{-9}$	3.01093307	3.010933071	-1.637725511e-10	-0.1637725511	-0.1638740255
$10^{-10}$	3.010933071	3.010933071	-1.282751683e-11	-0.1282751683	-0.1535749306
$10^{-11}$	3.010933071	3.010933071	-1.909583602e-13	-0.01909583602	-0.0280442336
$10^{-12}$	3.010933071	3.010933071	-4.174438573e-14	-0.04174438573	-0.008881784197
$10^{-13}$	3.010933071	3.010933071	-5.773159728e-15	-0.05773159728	-0.08881784197
$10^{-14}$	3.010933071	3.010933071	6.217248938e-15	0.6217248938	0.5995204333
$10^{-15}$	3.010933076	3.010933071	5.60075053e-09	5600750.53	2797869.27
$10^{-16}$	3.010933071	3.010933071	0	0	0
$10^{-17}$	3.010933071	3.010933071	0	0	0
$10^{-18}$	3.010933071	3.010933071	0	0	0
$10^{-19}$	3.010933071	3.010933071	0	0	0
$10^{-20}$	3.010933071	3.010933071	0	0	0
$10^{-21}$	3.010933071	3.010933071	0	0	0
$10^{-22}$	3.010933071	3.010933071	0	0	0

Table 1: Step size study for  $Ki\_V$ , gains Kph0.0544697\_Kih0.0076355\_Kpth1.6802\_Kith2.01171\_Kdth-1.64786\_KpV2.05882