







GPS, GLONASS, and Galileo (as of October 2011)							
Constellation characteristic	GPS	GLONASS	Galileo 56°: 27/3/1				
Walker designation	a. 1776	64.8°: 24/3/1					
Orbital planes	6	3	3				
Spacing of planes	60°	120°	120°				
Number of satellites (nominal)	32 (24)	24 (24)	2 IOV (27)				
Semi-major axis	26 500 km	25 510 km	29 600 km				
Inclination	55°	64.8°	56°				
Nodal drift per day	-0.0384°	-0.0336°	-0.0260°				
Length of GNSS year	351.5 days	353.2 days	355.6 days				
Revolution period	11 h 58 min	11 h 16 min	14 h 05 min				
	1/2 sidereal days	∛17 sidereal days	19/17 sidereal days				
Repeat cycle (sidereal days)	1	8	10				
Repeat cycle (orbital revolutions)	2	17	17				













































	Perturbation	Acceleration	Orbit Error after one Day			
		$[m/s^2]$	Radial [m]	Along Track [m]	Out of Plane [m]	
	$\frac{1}{r^2}$ -Term	0.57	"∞"	"∞"	"∞"	
	Oblateness	$5.1 \cdot 10^{-5}$	2750	32000	15000	
	Lunar Attraction	$4.5 \cdot 10^{-6}$	400	1800	30	
	Solar Attraction	$2 \cdot 10^{-6}$	200	1200	400	
	Higher Terms of the Earth's Grav. Field	$4.2 \cdot 10^{-7}$	60	440	10	
	Direct Rad. Pressure	$9.7\cdot 10^{-8}$	75	180	5	
	y-bias	$1.0\cdot10^{-9}$	0.9	8.1	0.3	
	Solid Earth Tides Atmospheric Drag	$5.0 \cdot 10^{-9}$	0.0	0.4	0.0	
The relat the o In an ork relati	Direct Rad. Pressure y-bias Solid Earth Tides Atmospheric Drag tivistic acceleration rbital perturbation oit adjustment proc vistic corrections	$\begin{array}{c} 9.7 \cdot 10^{-8} \\ 1.0 \cdot 10^{-9} \\ 5.0 \cdot 10^{-9} \\ \hline \end{array}$ n is of the os after one cess the reserved be <	75 0.9 0.0 order of day are sulting of 1 cm (!	180 8.1 0.4 	5 0.3 0.0 	ellites, i.e g the



