The method according to the invention is implemented using standard automatic identification system with satellite surveillance, comprising transmitters and receivers of maritime waterway vessels, a satellite in a suitable orbit, where the satellite can receive signals from said transmitters of said vessels. Earth surface is divided into zones on a digital map, where each zone has width of approximately 2/3 of the satellite field of view width (width must be such that the satellite field of view would cover only one such zone at a time). The zones subsequently are divided into sub-zones having width equal to the maximum communication range between vessels. In this way the map is divided into areas having a repetitive number of subzones. Such structure of zones and subzones is formed as a digital Earth surface map which is uploaded to the automatic identification system. Such division ensures that set of time intervals of packages is distributed to each sub-zone of the zones equally or in different proportions. Automatic identification system of each vessel in one of the sub-zones assign a time interval from a set of time intervals from a that one subzone or from closest subzone. In this way overlapping of signals of the automatic identification system in a satellite is avoided.