

Title		The ESA ALIVE Initiative: Supporting Disaster Management through SBAS
Author 1	Name	Javier Ventura-Traveset
	Postal Address	ESA. 18, Av. Edouard Belin. 31401 Toulouse CEDEX 4 (France)
	e-mail	jventura@esa.int
Author 2	Name	Felix Toran
	Postal Address	ESA. 18, Av. Edouard Belin. 31401 Toulouse CEDEX 4 (France)
	e-mail	ftoran@esa.int
Author 3	Name	Hans-Peter Plag
	Postal Address	Nevada University
	e-mail	hpplag@unr.edu
Author 4	Name	Ankit Raj Mathur
	Postal Address	ESA. 18, Av. Edouard Belin. 31401 Toulouse CEDEX 4 (France)
	e-mail	Ankit.Raj.Mathur@esa.int

TEXT OF THE ABSTRACT

Disaster prevention and mitigation is a subject to which currently intensive attention is devoted. One of the main goals is to identify ways to inform people at risk, for instance, through natural events such as earthquakes, tsunamis, hurricanes, storm surges, extreme precipitation and flooding, or volcanic eruptions, so that specific actions can be taken to mitigate the impact of the disaster and ultimately, to save lives. Moreover, the same information channels would be valuable tools to support rescue and aid operations in the aftermath of disasters thus reducing the total loss of human lives. This discussion is motivated by the obvious principle that *disaster prevention, mitigation and preparedness are better than mere disaster response*.

Those most affected by disasters are often the poor and the socially disadvantaged in developing countries as they are the least equipped to cope with the situation. In large regions of the Earth, loss of life and capital caused by disasters is increased by the lack of sufficient communication infrastructure for warning, preparation and rescue. For instance, in countries like Africa and the Indian Ocean, where the lack of communication is a severe limitation for efficient warning systems, additional communication paired with a positioning service could be of great help. Moreover, it is worth to remark that the disaster itself often destroys ground-based communications

infrastructures or strongly increased communication needs lead to jamming of e.g. tele-communication channels

In this context, the possibility to use Satellite Based Augmentation Systems (SBAS) message broadcast capability is of considerable interest.

Indeed, SBAS systems (EGNOS, for the case of Europe) are associated with a number of inherent characteristics, which make the SBAS solution very attractive:

- The three existing SBAS together provide a global coverage;
- SBAS receivers are based on GPS receivers and share the same worldwide accepted standards;
- SBAS GPS combine the possibility of warning with the ability to determine the location of the receiver in the same equipment (key feature);
- The SBAS systems, having been conceived as safety of life systems with integrity, include the necessary built-in features to guarantee adequate message broadcast, integrity of messages, confirmation of transmission; acknowledge messages to sending organizations, etc;
- It is estimated that there is enough transmission Bandwidth (BW) available to accommodate the proposed function;
- SBAS are institutionally controlled, do include security features and are operated for safety of life (i.e. all days all hours of the year with Safety of Life operational standards).

This paper will present this ESA ALIVE initiative, explain why it is considered to be of interest and societal value, provide information on the way this implementation may be effectively done in EGNOS; and provide a concrete implementation plan. It is firmly believed the material presented is highly relevant to international groups and communities involved in disaster management for their consideration and feedback.

It is to be noted that the ESA ALIVE concept have been formally retained as potential EGNOS mission evolution (in the context of the formal EGNOS Mission control Board) and has also retained the firm interest of the European commission and several other UN and International disaster mitigation agencies.