

**The Global Positioning System: United States Government  
Liability  
-Real and Potential-**

**Risk Management in GNSS Malfunctioning  
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**I. INTRODUCTION**

In 1973, the United States Government (USG) began the development of the Global Positioning System (GPS), and it became fully operational in 1994. Originally designed to enhance the military's navigation capabilities, in 1983, after a navigation error that resulted in a commercial airliner being shot down over Russian airspace, then President Reagan ordered that the system, when fully developed, would be shared for civilian use throughout the world. Since then, it has been available for worldwide civilian use at no cost to the users.

From the time the United States Government made the service available, there has been the question of what, if any, liability the United States would have for the failure of the system.<sup>1</sup> Because many of the users of the GPS are outside the United States, the

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<sup>1</sup> As early as 1992, U.S. government realized this potential problem. That year, the United States Air Force inaccurately updated the position of one of the satellites in the GPS constellation. The resulting error caused a horizontal position error to GPS receivers that exceeded three hundred meters. See D.H. Alsip et al., *Implementation of the U.S. Coast Guard's Differential GPS navigation Service 1-2* (June 1993). This potential liability has expanded exponentially because of the millions of users around the globe who depend on the reliability of the GPS services on a daily basis.

question of U.S. government liability for the GPS extends to both American and non-American users.

The GPS accommodates both military and civilian users. In this paper, the focus is on civilian use, both foreign and domestic.

## **II. TIERS OF LIABILITY**

The question of liability for the GPS can fall on three classes of parties. First, there are the manufacturers of the satellites and component parts of the physical GPS. Second, there is the United States that owns and operates the system. Third, there are the suppliers of hardware<sup>2</sup> and software<sup>3</sup> necessary for users to access and use the GPS.<sup>4</sup> It is the second tier, the liability of the United States Government as owner and operator of the GPS that is the subject of this paper.

## **III. LIABILITY FOR CIVILIAN USE OF THE GLOBAL POSITIONING SYSTEM**

### **a. Contract Law**

There is no reasonable basis for a contract claim against the U.S. as the owner and operator of the GPS based on civilian use of the system. The United States provides free access to the system, but the government specifically does not enter into any contractual agreements with either domestic or foreign parties for the use of the system. Thus, not only is there no basis for a direct action in contract against the United States, as there is an absence of a contract, there is also no basis for an action as a contract third party beneficiary against the United States.

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<sup>2</sup> For example, the manufacturers of hand held GPSs or smart phones that contain a GPS radio.

<sup>3</sup> For example, the suppliers of maps that rely on the GPS to determine the user's location.

<sup>4</sup> There seems to be a strong basis for liability among suppliers of the hardware and software for access and use of the GPS. See e.g., "*The Machine Knows!*": *What Legal Implications Arise for GPS Device Manufacturers When Drivers Following Their GPS Device Instructions Cause an Accident*, 44 *New England Law Review* 159 (2009); "*Oops, My GPS Made Me Do It!*": *GPS Manufacturers Liability Under a Strict Products Liability Paradigm When GPS Fails to Give Accurate Directions to GPS End Users*, 34 *University of Dayton Law Review* 429 (2009).

The open access to GPS, coupled with the impossibility for the U.S. to monitor who uses it would effectively negate any claim for an implied contract as there would be no effective way to the United States to appreciate the level of risk entailed by the usage of the system.

**b. Tort Law**

One possible source of liability by the U.S. is under tort law. As will be discussed, the barriers to recovery here are significant.

The first significant barrier is the fact that the United States, as with many other countries, asserts immunity from liability under the doctrine of sovereign immunity. This however is not an absolute bar because both by statute and treaty, the United States has waived sovereign immunity for some actions.

One might look to five sources of statutory and treaty law as possible bases for liability by the United States government as the owner and operator of the GPS: the Foreign Claims Act (“FCA”),<sup>5</sup> the Military Claims Act (“MCA”),<sup>6</sup> the Convention on International Liability for Damage Caused by Space Objects (the “Convention”),<sup>7</sup> the Suits in Admiralty Act (“SAA”),<sup>8</sup> and the Federal Torts Claims Act (“FTCA”).<sup>9</sup>

*i. Foreign Claims Act*

The FCA does not waive sovereign immunity, *per se*, but it allows an administrative claim against the United States government by foreign nationals for personal injury and property damage occurring outside the United States caused by non-military activities by military and civilian employees of the United States Military whether they are acting within the scope of their employment or not.

Because the GPS is operated by the United States military, to the extent an injury is caused by the negligent or intentional acts of a person operating the GPS, this would provide a possible legal remedy.

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<sup>5</sup> 10 U.S.C. § 2734.

<sup>6</sup> 10 U.S.C. § 2733.

<sup>7</sup> 24 U.S.T. 2389 (March 29, 1972).

<sup>8</sup> 46 U.S.C. §§ 741-752.

<sup>9</sup> 28 U.S.C. § 1346(b).

To bring a claim under the FCA, a claimant would have to base the claim on the acts of a specific person and not on the general failure of the system. This could be a difficult factual burden to meet. In addition, claims are limited to one hundred thousand dollars (\$100,000),<sup>10</sup> and remedies are only provides for personal injury and property damages. The Act does not provide for economic losses.

*ii. Military Claims Act*

The Military Claims Act provides an administrative claim against the United States government for American citizens and others who would not have a claim under the FCA for personal injury and property caused by non-military activities by military and civilian employees of the United States Military whether they are acting within the scope of their employment or not. Where the FCA allows claims by foreign nationals, the MCA allows claims by American citizens. AS with the FAC, these claims must be based on military actions, but as the GPS is run by the United States military, this would be a source of liability for the government's ownership and operation of the GPS.

Similar to the FCA, claims are limited to one hundred thousand dollars (\$100,000),<sup>11</sup> and remedies are only provides for personal injury and property damages. The Act does not provide for economic losses.

*iii. Suits in Admiralty Act*

The Suits in Admiralty Act waives sovereign immunity against the United States for claims against the United States arising on the high seas or navigable waters of the United States that pose a potential threat to maritime commerce; and is substantially related to traditional maritime activity.<sup>12</sup> Ordinarily, the Act is limited to ships, other water craft, and some overwater flights.<sup>13</sup> However, when the Government undertakes to perform a function such as maintaining lighthouse lights, when the lights go out the Government has been held liable under this Act.<sup>14</sup> One could analogize this to the GPS signals used for maritime navigation where the injury caused by the defective GPS signal

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<sup>10</sup> 10 U.S.C. § 2734.

<sup>11</sup> 10 U.S.C. § 2734.

<sup>12</sup> *Sisson v. Ruby*, 497 U.S. 358 (1990).

<sup>13</sup> *Miller v. United States*, 725 F. 2d 1311 (11th cir. 1984), Cert. denied, 469 U.S. 821 (1984).

<sup>14</sup> *Indian Towing Company v. United States*, 350 U.S. 61 (1955).

resulted in a maritime loss. A major restriction under the act is the limitation of damages to personal injury and property damages. Economic losses are not provided for under the Act.<sup>15</sup>

iv. *Convention on International Liability for Damage Caused by Space Objects*

The United States, as with other nations that have ratified the Convention on International Liability for Damage Caused by Space Objects, are strictly liable for objects placed in space by that country when damage is caused on the surface of the earth or to an aircraft in flight by the space objects.<sup>16</sup> This convention, though, is not likely to be a source of government liability for the GPS.

First, claims cannot be made by individuals, but must be brought by a state that is a party to the Convention. Moreover, the language of the Convention as well as deliberations on the Convention and commentators all suggest that the Convention was meant to only cover direct physical damage at the earth's surface caused by a malfunctioning during launch or failure of the object to burn up on reentry.<sup>17</sup> This would appear to eliminate damage caused by missing or incorrect electronic signals generated by the GPS.

v. *Federal Tort Claims Act*

Under the Federal Torts Claims Act, the United States waives sovereign immunity for :

[I]njury or loss of property, or personal injury or death caused by the negligent or wrongful act or omission of any employee of the government while acting within the scope of his office or employment, under circumstances where the United States, if a private person would be liable to the claimant in accordance with the law of the place where the act or omission occurred.<sup>18</sup>

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<sup>15</sup> While the SAA does not expressly provide a discretionary function exception, some U.S. courts have read the discretionary function exception into the SAA to prevent recovery that ordinarily would be barred by the FTCA had the tort occurred on land instead of on water. 33 Vand. J. Transnat'l L. 371, 377 (2000). The limitation on actions based on the discretionary function rule is discussed below.

<sup>16</sup> See generally Convention on International Liability for Damage Caused by Space Objects, March 29, 1972, 24 U.S.T. 2389, 961 U.N.T.S. 178 (hereinafter the "Convention").

<sup>17</sup> 14 ILSA J. Int'l & Comp. L. 571, 585 (2008).

<sup>18</sup> 28 U.S.C. § 1346(b).

The FTCA is the most likely source of liability for the United States government for the ownership and operation of the GPS. However, the number of exceptions to this law makes potential recovery for GPS failure a complex maze of legal rules that must be successfully negotiated before a recovery is possible.

First, the claim must be directed toward the specific act of an individual employed by the federal government. Thus, general failure of the GPS without the cause being attributed to the act or omission of a person would not bring the claim within the scope of the FTCA.

Second, the wrongful act must not be intentional. The standard is negligence.

Third, the act must not come within the discretionary function exception to the FTCA. This exception is contained in the act:

Any claim based upon an act or omission of an employee of the Government, exercising due care, in the execution of a statute or regulation, whether or not such statute or regulation be valid, or based upon the exercise or performance or the failure to exercise or perform a discretionary function or duty on the part of a federal agency or an employee of the Government, whether or not the discretion involved be abused.<sup>19</sup>

There is a tremendous amount of case law on the discretionary function exception to the FTCA, but it can be summarized as immunizing the U.S. for any claim based upon an act or omission of an employee of the government, exercising due care, in the execution of a statute or regulation whether or not such statute or regulation be valid, or based upon the exercise of or performance or the failure to exercise or perform discretionary function or duty on the part of a federal agency or an employee of the government, whether or not the discretion involved is abused.<sup>20</sup> In effect, this comes down to whether the employee has to exercise her judgment in making the decision that led to the injury.<sup>21</sup> In effect, the act or omission must be one of negligence and not one of bad decision made as a discretionary act of the employment.

A fourth restriction to the FTCA is its inapplicability to claims that arise in a foreign country. This may not be a bar for foreign parties injured by the GPS. For

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<sup>19</sup> 28 U.S.C. § 2680(a).

<sup>20</sup> *Ibid.*

<sup>21</sup> *Berkovitz v. United States*, 486 U.S. 531 (1988).

example, in *In re Paris Air Crash of March 3, 1974*<sup>22</sup> the court held that the claim was not barred under the FTCA, for although the crash occurred in France, the cause of the accident was the wrongful approval of an inspection certificate for the plane in California. Likewise, the argument could be made that although the injury may occur in a foreign country, if the cause of the injury was a missing or defective GPS signal originating the United States, the cause of the injury occurred in the United States.<sup>23</sup>

Although the exceptions to the FTCA give a somewhat limited amount of liability for the United States for GPS failure, even this limited scope could disappear if the Congress adds an exception to the FTCA barring claims arising from the GPS. Such an exception now exists, for example, for the United States Postal Service.

#### **IV. GPS LIABILITY AS A MODEL FOR OTHER GNSS SYSTEMS**

As with the American GPS, questions of liability with the Galileo system also raise a three tiered approach: there are the manufacturers of the satellites and component parts of the physical GNSS system, there is the owners and operator of the system, and there are the suppliers of hardware and software necessary for users to access and use the GNSS. The comparison I will make is between the American GPS and the proposed operating system of Galileo.

Galileo, as presently conceived, will be operated as a joint public and private venture. As such, it will not enjoy the benefit of sovereign immunity, and therefore liability issues are of greater concern than those faced by the United States government with the GPS.

Under the current proposed structure of the Galileo GNSS system, both free and paid services will be provided.<sup>24</sup> As to the free services, it is assumed that the liability regimes will be similar to the American GPS in that there will be no contractual relationship between the provider and the user, and therefore absent any applicable

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<sup>22</sup> 399 F.Supp. 732 (Cal. 1975).

<sup>23</sup> That it is the place where the act causing the injury and not the place of the injury that should be the basis for the foreign injury exception has been recognized by the United States Supreme Court, so this rule does not seem to be in doubt. *United States v. Spelar*, 338 U.S. 217 (1949).

<sup>24</sup> UNIDROIT doc. C.D. (86) 20, p. 5.

international convention, any liability by the operator for these services will have to be derived from the respective national tort laws.<sup>25</sup>

As to those services that the user will have to pay for, Galileo will presumably have to accept some liability under the payment agreement under contract law unless the agreement specifically excludes or limits liability.

It is this exclusion or limitation of liability that should cause concern. Absent a binding international treaty, a variety of conflict of law and contract enforcement issues are raised that could create great uncertainty by the operators. Whose law will apply? Will that law recognize the limitation on liability? A convention could resolve these issues by providing a uniform set of rules on these questions.

## **V. THE NEED FOR AN INTERNATIONAL TREATY FOR GNSS LIABILITY**

At the time that ICAO first began discussions on a possible international convention for GNSS liability, several member states of ICAO expressed hesitancy about using the GPS as a major component for air traffic services without an international convention to establish liability.<sup>26</sup> The convention did not materialize. Despite this, GPS is now the world standard for not only air traffic, but for the maritime industry and innumerable other industries. The GPS has worked well and grown without the existence of an international convention on liability. It may be that other operating models of GNSS services suggest the need for a convention.

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<sup>25</sup> Frans G. von der Dunk, *Liability for Global Navigation Satellite Services: A Comparative Analysis of GPS and Galileo*, 129 *Journal of Space Law* 129 (2004).

<sup>26</sup> See e.g., Francis P. Schubert, *An international Convention on GNSS Liability: When Does Desirable Become Necessary?*, XXIV *Annals of Air and Space Law* 245 (1999).