

SPACE DEBRIS SYMPOSIUM (A6)
Operations in Space Debris Environment, Situational Awareness (7)

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THE PEGASUS INCIDENT: THE LOSS OF THE FIRST ECUADORIAN SATELLITE AND ITS
RECOVERY

Abstract

On 2013 April 25, after almost 4 years of development and testing, NEE-01 PEGASUS—the first Ecuadorian satellite—was launched onboard a Long March 2D from the JiuQuan Cosmodrome in the People's Republic of China. After successfully reaching orbit, NEE-01 began operations on 2013 May 5.

On 2013 May 23, the signal for NEE-01 was suddenly lost and the Ecuadorian Civilian Space Agency (EXA) began a concerted effort to determine what had happened and how to recover NEE-01. Although the signal was eventually heard, EXA was unable to reestablish contact and after three months, NEE-01 was declared lost. Coincidentally on that same date a close approach between NEE-01 and object SCC15890 occurred before the signal was lost.

Despite being declared lost, EXA continued to attempt to reestablish contact in hopes of determining what had happened. As part of this process, EXA developed a micro-repeater module —code-named PERSEUS— to be flown on the upcoming NEE-02 KRYSAOR mission, which was launched from the Yasny Cosmodrome on 2013 Nov 21.

After some delay in establishing the correct identification for NEE-02, EXA began normal operations on 2013 Dec 5 and by Dec 20, they began testing the PERSEUS module. By 2014 Jan 25, EXA was able to announce that they had been successful in reestablishing contact with NEE-01 using the PERSEUS module.

This paper will examine the evidence collected—both orbital data immediately after the incident and telemetry data relayed via NEE-02—to assess several possible causes for the loss of contact with NEE-01, including the possibility that it was struck by man-made or natural space debris.