



DEPARTMENT OF DEFENSE
UNITED STATES SPACE COMMAND
150 Vandenberg St, Ste 1105
Peterson SFB, CO 80914

1 MAR 22

MEMORANDUM FOR NASA SCIENCE MISSION DIRECTORATE
ATTENTION: DR. THOMAS ZURBUCHEN

FROM: DCDRUSSPACECOM

SUBJECT: Confirmation of Interstellar Object

1. As you may be aware, Dr. Amir Siraj and Dr. Abraham Loeb of the Department of Astronomy of Harvard University authored a paper titled *Discovery of a Meteor of Interstellar Origin*. This paper identified a meteor detected on 2014-01-08 at 17:05:34 UTC. The paper reported the meteor as originating from an unbound hyperbolic orbit (defined as interstellar space hereafter) with 99.999% confidence. This event would predate the discovery of 'Oumuamua by about 3 years.
2. Subsequently, Dr. Joel Mozer, the Chief Scientist of Space Operations Command, the United States Space Force service component of U.S. Space Command, reviewed analysis of additional data available to the Department of Defense related to this finding. Dr. Mozer confirmed that the velocity estimate reported to NASA is sufficiently accurate to indicate an interstellar trajectory.
3. We appreciate the work that NASA's Science Mission Directorate does in expanding our understanding of outer space and look forward to continuing the advancement of science through the strong relationship between NASA and U.S. Space Command.

A handwritten signature in black ink, appearing to read "John E. Shaw".

JOHN E. SHAW
Lieutenant General, USSF
Deputy Commander

cc:
USSF/VCSO (Gen David Thompson)
SpOC/CC (Lt Gen Stephen Whiting)
SpOC/STR (Mr. Joel Mozer)
USSF/CTIO (Dr. Lisa Costa)
NASA PDCO (Mr. Lindley Johnson)
EOP/OSTP (Mr. Matthew Daniels)