

Western University

Scholarship@Western

Inspiring Minds – A Digital Collection of
Western's Graduate Research, Scholarship and
Creative Activity

Inspiring Minds

September 2023

The Development of Interstellar Meteoroid Streams

Cole R. Gregg

Western University, cgregg2@uwo.ca

Paul Wiegert

The University of Western Ontario

Follow this and additional works at: <https://ir.lib.uwo.ca/inspiringminds>

Citation of this paper:

Gregg, Cole R. and Wiegert, Paul, "The Development of Interstellar Meteoroid Streams" (2023). *Inspiring Minds – A Digital Collection of Western's Graduate Research, Scholarship and Creative Activity*. 536.
<https://ir.lib.uwo.ca/inspiringminds/536>

The Development of Interstellar Meteoroid Streams

A vast distance separates our Sun from the stars, yet their system's material does sometimes appear in our own Solar System. The work of my PhD is to help answer the question: where is it coming from and how is it delivered? The details of this interstellar material's travels throughout the Galaxy are unknown but have wide-ranging implications. This material could seed the formation of planets in newly forming planetary systems, while also dispersing chemical elements, organic molecules, or even life between nearby star systems. The first two interstellar objects discovered have been recent, 1I/'Oumuamua and 2I/Borisov, the first a rocky body, the second an icy one: these very different compositions highlight the mystery of their origin. My research simulates stellar systems ejecting material within the Milky Way. I analyze the motion of the ejecta as the material evolves in time and examine the development of the galactic "meteoroid streams."

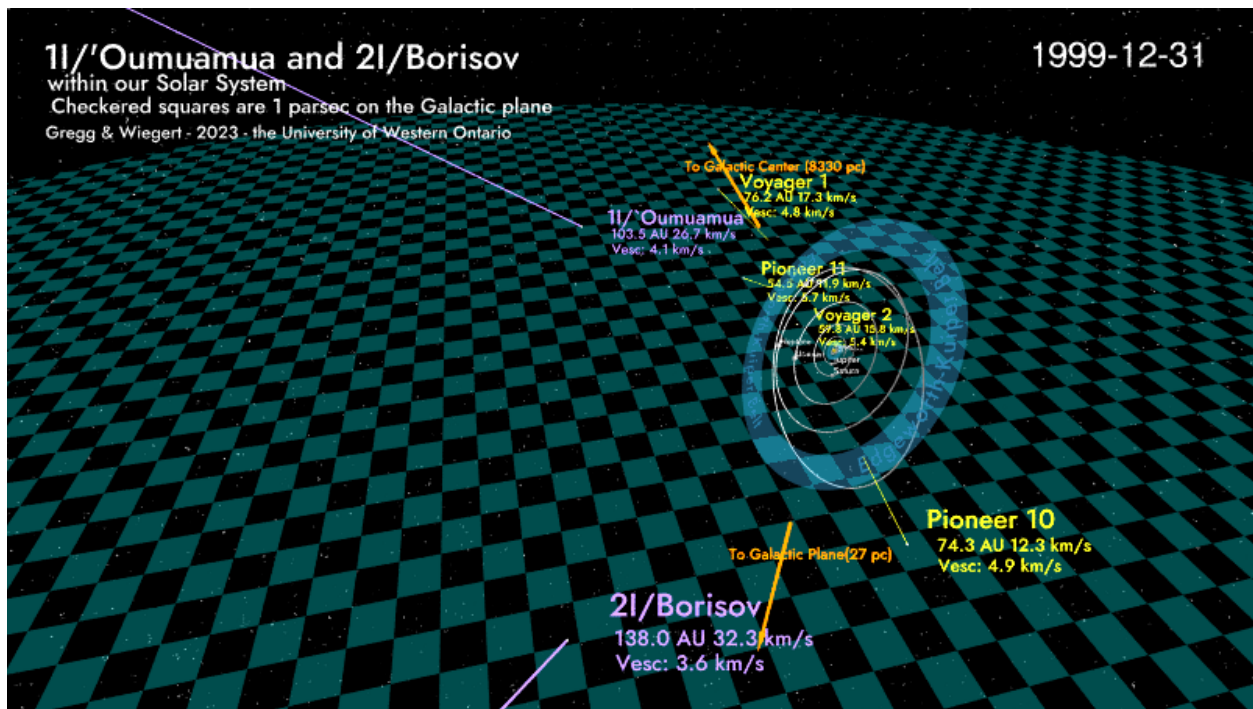


Figure 1: 1I/'Oumuamua and 2I/Borisov approaching the Solar System.

Cole Gregg
PhD Astronomy
Supervisor: Dr. Paul Wiegert