

HOW TO FILL OUT AN ORBITAL DATA REQUEST (ODR)

NOTE: When submitting a request for specialized website access, all individuals must have a valid user account on www.space-track.org. If access for multiple users is required, please submit one ODR with all of their Space-Track.org usernames.

<u>BLOCK</u>	<u>ENTRY</u>
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|-------|---|
| 1 | Show date of preparation in the "DDMMYY" format. |
| 3 | Name and full address of the requesting agency |
| 4-5 | Management / Technician Level POC's. Please provide full contact information. |
| 6 | State the name of the project or program the data will support. |
| 7 | All requests associated with, or in direct support of, a joint NASA mission are coordinated through NASA Goddard Space Flight Center's USSTRATCOM Liaison (email: odr-liaison@lists.nasa.gov; phone: (301) 286-9545). If direct support is needed from Goddard OSAs, check the box. |
| 8 | Give a brief description of the project, to include why the data is needed and the intended end result of the use of the data. For redistribution requests, please include who the data will be redistributed to, the purpose of redistribution, and examples of redistributed products (provide website, if applicable). Attach an appendix, if necessary. |
| 9 | Identify the exact data needed and the time span required. Requests that are general in nature cannot be filled until the exact needs are known. |
| 10 | Define any special requirements peculiar to the request or the use of the data, such as time period and frequency of delivery. |
| 11 | Specify Space-Track.org account, email address, mailing address, or other information that indicates the best method of delivery for the data requested at the appropriate security level. |
| 12 | Enter the date you would like to start receiving the data you are requesting. Please allow 30 days from the date of request. |
| 13 | For recurring data request, enter a stop date. Maximum length of request cannot exceed one year without resubmitting a new ODR. Leave this section blank if this is a one-time request. |
| 14 | Redistribution policy. Requestors need to check the box acknowledging the redistribution policy for the data requested. |
| 15 | For requesting agencies that DO NOT have a standing agreement with USSTRATCOM, a pen signature is required (a scanned copy needs to be submitted for processing). For requesting agencies that have a standing agreement with USSTRATCOM, are U.S. government entities, or are contracted by a U.S. government entity, enter ///SIGNED/// followed by the full name of the requestor. |
| 16-17 | The DoD or Federal government-contracting officer verifies the civilian contractor's need for the data. If the data is classified, the company's need-to-know is stated in writing. The contracting officer is the point of contact for questions on the data request. |
| 18-19 | Type the name and grade of the approving contracting officer. Enter ///SIGNED/// for electronic submissions. |
| 20-24 | For JFSCC internal use only. |

NOTE:

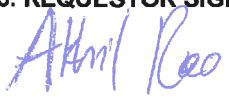
All users are required to revalidate their need for orbital data on a yearly basis.

SUBMISSION

All requests should be submitted to jspoc.ssasharing@us.af.mil.
Questions concerning ODR approval should be directed to jspoc.ssasharing@us.af.mil or +1-805-606-2675.

Classified requests may be sent to odr@afspc.af.smil.mil.

ORBITAL DATA REQUEST		1. DATE OF PREPARATION: 9/28/18	
2. To: JFSCC, Vandenberg AFB, California		3. FROM: (Requesting agency – Name, address, and ZIP) Akhil Rao Department of Economics, University of Colorado Boulder, 256 UCB Boulder, CO 80309-0256	
Submission of this request constitutes an agreement not to hold the United States, any agencies and instrumentalities thereof, and any individuals, firms, corporations, and other persons acting for the United States, liable for any cause of action arising from the provision or receipt of space situational awareness services or information. 10 USC 2274(g).			
REQUESTOR DATA			
NAMES OF CONTACTS	ADDRESS	TELEPHONE/FAX	E-MAIL
4. MANAGEMENT LEVEL Akhil Rao	same as above	Office: Mobile: (951) 732-7261	akhil.rao@colorado.edu
5. TECH/OP LEVEL Akhil Rao	same as above	Office: Mobile:	
6. PROJECT TO BE SUPPORTED Dissertation titled "The Economics of Orbit Use: Theory, Policy, and Measurement"		7. NASA Coordination (NASA missions only) Date: Goddard OSA support required? <input type="checkbox"/>	
8. NARRATIVE REQUEST AND/OR PROJECT DESCRIPTION (Describe the project/program the data will support, why the data is needed, and the intended end-result.) My dissertation approaches problems of orbital debris accumulation and collision risk from an economic perspective. In the first chapter, I develop a theoretical framework to show that the equilibrium collision risk will be driven by the profitability of satellite ownership and property rights institutions around orbit use. Studies of the future debris environment typically treat the launch rate as a parameter to conduct sensitivity analyses on; the economic framework endogenizes the launch rate, making it a variable which responds to underlying economic parameters such as launch costs and interest rates. In the second chapter, I map space traffic control policies into equivalent market-based instruments, and consider the economic incentives of active debris removal. These models allow me to develop economic principles of space traffic control, including active debris removal financing. The third chapter takes these theories to data to measure the degree of inefficiency in current orbit use, approximate an optimal market-based instrument to control orbital collision risk, and estimate the improvement in social value from orbit use which could be achieved by optimal space traffic control. The Space-Track.org data will help me conduct the analysis in the third chapter. Specifically, I will use it to construct time series of aggregate orbital stocks (satellites and debris) in LEO (for my study, semi-major axis <2000km) as well as histories of each object that was once an active satellite. I have some first-pass time series constructed from other sources, but the active satellite series is very rough. The detailed histories will also help me estimate other economic parameters for future studies, such as the value of the option to deorbit a satellite, the shadow costs of limited launch availabilities, the value of (currently-hypothetical) generalized orbital path property rights. One way to think of this framework is by analogy with bioeconomic models of fisheries: high-fidelity biological models of fish migration and feeding patterns are often augmented for policy use with economic models of fishing behavior. Similarly, the framework I am developing could be used to augment existing models of the debris environment with economic models of satellite launching or deorbiting behavior. Some examples of my work are available at my website, https://akhilrao.github.io .			
9. SPECIFIC DATA REQUIRED (Standard formats should be specified whenever possible.) Ideal data: Orbital parameters, NORAD ID, and any available details of operator/launcher for all* active payloads launched, with details of when/if they were deorbited or naturally decayed or how/if they were fragmented. Orbital parameters and NORAD ID of all tracked debris objects with details of when/how they were created, when they were first detected, and when/if they decayed. JSON or CSV would be preferred to TLE. * My study is focused on commercial payloads; non-commercial payloads will help me calibrate my model, but classified payloads are not necessary. My analyses till date have used Jonathan's Space Report, the Union of Concerned Scientists' active satellite database, data I was able to download from Space-Track.org, and some debris data shared by ESA.			
10. SPECIAL REQUIREMENTS (Specify time period, frequency, etc., of requested data) Ideal sample would be 1958-2018. Yearly frequency is sufficient, i.e. yearly snapshots of orbital state at the end of the year (or some other consistent point in the year). Since my study is academic, I would like to cite the data appropriately. A preferred citation would be helpful. Some journals require data publication alongside articles, unless prohibited by confidentiality requirements. I do not believe any of the data I would like is classified, though I may be mistaken. I would like to be able to save this data for future studies and publish it on my website for other economic researchers, with the appropriate citation.			
11. MODE OF DELIVERY (e.g. email addresses, Space-Track.org accounts, routing indicators, mailing address, etc. Also specify classification requirement) Data may be emailed to akhil.rao@colorado.edu , which is also the username for my Space-Track.org account. I do not have any classification requirements.			
12. DATE DATA REQUIRED (Allow 30 days for routine requests) October 28 th , 2018.		13. DATE FOR TERMINATION OF DATA (Maximum 1 year) Would it be possible for me to retain the data and publish it on my website, with an appropriate citation?	

14. REDISTRIBUTION CERTIFICATION: I certify that the data, analysis of data, or technical information received through this request will not be transferred to any individual or agency not listed on this form, unless authorized otherwise by USSTRATCOM. <input checked="" type="checkbox"/>		15. REQUESTOR SIGNATURE 
MILITARY PROGRAM OR PROJECT MONITOR CERTIFICATION <small>(Blocks 16-19 Required only for requests directly supporting US Government programs or projects)</small>		
16. CONTRACT #		17. PHONE
18. TYPED NAME AND GRADE OF APPROVING CONTRACT OFFICER		19. CONTRACT OFFICER SIGNATURE
ODR APPROVAL <small>(FOR JFSCC/INTERNAL USE ONLY)</small>		
20. <input type="checkbox"/> APPROVED <input type="checkbox"/> APPROVED W/CAVEAT (see block 22) <input type="checkbox"/> DISAPPROVED		21. DATE:
22. APPROVAL CAVEAT(s) (if any)		
23. TYPED NAME AND GRADE OF ODR APPROVING OFFICIAL		24. APPROVING OFFICIAL SIGNATURE

ODR, OCT 2015

