Memorandum of Understanding between the California Institute of Technology Jet Propulsion Laboratory and the Inter-American Tropical Tuna Commission

I. Parties

This Memorandum of Understanding (MOU) is entered into by the Inter-American Tropical Tuna Commission (IATTC), an international intergovernmental organization governed by the 2003 Antigua Convention and whose headquarters are located in the State of California at 8901 La Jolla Shores Drive, La Jolla, CA 92037-1509, and the California Institute of Technology (Caltech), a nonprofit educational institution incorporated in California, through its Jet Propulsion Laboratory (JPL), an operating division of Caltech and a Federally Funded Research and Development Center (FFRDC) located at 4800 Oak Grove Drive, Pasadena, California 91109.

II. Background and Purpose

COVERAGE (CEOS Ocean Variables Enabling Research and Applications for GEO) is a formal NASA-led initiative and international collaboration within the Committee on Earth Observation Satellites (CEOS), where it is also being advanced as a cumulative CEOS contribution to the UN Decade of the Ocean for Sustainable Development. The COVERAGE project lead and technical implementation team are based at JPL. COVERAGE seeks to provide an enhanced data service infrastructure facilitating improved, more integrated access to interagency satellite data products for key ocean parameters and complementary in-situ datasets in support of science and applications for societal benefit. COVERAGE development is characterized by a phased, stakeholder driven approach involving applications community engagement. Implementation of a prototype capability during Phase-B has occurred in the context of a thematic ecosystem pilot application focusing on the dynamics of high seas tuna fisheries in relation to the environment. This has involved aggregation and synergistic use of a curated set of multi-variate satellite product and select in-situ data of relevance that are being provisioned and integrated with remotely sensed environmental observations via COVERAGE services. Application data currently include long term

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series on the spatial abundance distribution of tuna species and complementary animal telemetry data made available by intergovernmental regional fisheries management organizations (RFMOs), including from the IATTC which is the RFMO responsible for the conservation and sustainable management of tunas and tuna-like species, associated species and their ecosystems in the Antigua Convention Area and thus oversees the monitoring, data curation, stock assessment and management of tuna and tuna-like species fisheries within the eastern tropical Pacific. Additional information on COVERAGE is available at https://coverage.ceos.org/.

Further advancement of COVERAGE capabilities and its ecosystem pilot application will involve collaboration with experts at the IATTC to better understand the needs of the fisheries science community for both satellite and model ocean data and analytics technologies with the objective of improvements to better support emerging ecosystem and dynamic ocean management efforts in future. There is currently a growing number of research applications at the Commission in this space involving the use of environmental datasets for the oceans that JPL has considerable expertise in and can provide guidance on. Additionally, in seeking to simplify environmental data acquisition, visualization, collocation and computational analysis workflows for such applications, COVERAGE has the potential to reduce overhead and enable the kind of paradigm shift that will be necessary to efficiently work with higher resolution, larger volume satellite and model datasets sustainably into the future. Here we seek to further refine and exercise COVERAGE capabilities in the context of a representative use case identified and being worked on by the IATTC relating to the Bigeye tuna fishery and the role of environmental variability on spatial stock structure and dynamics. The intent ultimately is to be able to apply COVERAGE capabilities to reproduce an existing baseline set of analyses involving the combined use of remote sensing physical and fishery dependent biological data and if possible explore possible further extensions.

The purpose of this MOU is to establish a collaboration between JPL and the IATTC in the context of COVERAGE and its Phase-C activity. General areas of mutual benefit and collaboration have been outlined above with additional details provided further below (Section IV). Given that this is not a jointly funded activity, participation of both parties is understood to be on a best efforts basis. Expectations in terms of possible requests, particularly ones with potential resource implications, shall be commensurate in scope.

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III. Costs and Resources

Each party bears all costs and expenses incurred by it in performing or in connection with this MOU. There is no exchange of consideration. Each party provides its own equipment and facilities as necessary to implement the efforts described herein. Resources, including property, cannot be loaned or exchanged under this MOU.

The activities of JPL under this MOU are funded and are to be performed under Caltech's Prime Contract with NASA, Contract 80NM0018D0004. At this time, the Task Order which supports this effort is No. 80NM0018F0585, "Research and Analysis (R&A) - Earth Science, Climate Variability and Change." If needed, this MOU may be supported by other appropriate sources in the future.

This MOU does not constitute a binding or exclusive obligation on either party. Nothing in this MOU will be construed as consent by either party to enter into a contract, subcontract or other business relationship.

IV. Description of Activities

A. On an as-available, best efforts basis, without warranties, without consideration and subject to the requirements of 80NM0018D0004, the prime contract between Caltech and NASA, and at no charge to IATTC, JPL will carry out the following activities:

1. Collaborate with the IATTC primary point of contact to COVERAGE, Dr. Jon Lopez, to scope and develop the specific regional Bigeye tuna application use case for the eastern tropical Pacific.

2. Endeavor to align and accommodate this work as best as possible under planned COVERAGE Phase-C tasks.

3. Seek more generally to understand and document the needs of the IATTC with respect to remote sensing environmental data products, value-added data and analytics services.

4. Host periodic meetings with IATTC to discuss and coordinate the collaboration.

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B. On an as-available, best efforts basis, without warranties, without consideration and at no charge to JPL, IATTC will carry out the following activities:

1. Engage with the COVERAGE project and JPL lead, Dr. Vardis Tsontos, periodically and on an as-needed basis to coordinate on aspects of the collaboration.

2. Collaborate with JPL collaborators to define the detailed scope IATTC's proposed eastern tropical Pacific Bigeye tuna application use case.

3. Assist JPL efforts towards the implementation of this use case by providing any necessary guidance and specific supporting datasets for inclusion.

4. Assist COVERAGE more generally in understanding the needs of the IATTC for environmental data products, value-added data services in support of its analysis workflows.

5. Collaborate with JPL on any joint publications that may result from this activity.

V. Rights in Inventions and Intellectual Property

The parties do not intend that the activities performed under this MOU will result in inventions or the creation of new intellectual property, but if any result, the parties understand that this MOU shall provide no rights or obligations between the parties with respect to any new or preexisting intellectual property. This MOU does not serve as a basis for any such rights or obligations. The parties understand that the following will apply due to the preexisting obligations of the parties and its employees, or due to relevant U.S. law relating to title to inventions, none of which are modified or limited by this MOU:

- IATTC retains exclusive title and all rights to inventions, copyrights, and other intellectual property arising from the conceptions or efforts of its employees or consultants in performing this MOU or any implementing agreement hereunder.

- Subject to the U.S. Government's rights and interests, Caltech retains exclusive title and all rights to inventions, copyright and other intellectual

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property arising from conceptions or efforts of JPL employees or consultants in performing this MOU. The U.S. Government retains a right to use such inventions, copyrighted materials, or other intellectual property, royalty-free, for authorized government purposes.

- Subject to U.S. Government rights and interests, IATTC and Caltech will hold joint title and rights in inventions, copyrights, and other intellectual property arising from the joint conceptions or efforts of both parties' employees or consultants in performing under this MOU.

VI. Federal Export Laws and Regulations

In the performance of this MOU, JPL and IATTC may exchange or develop data, information, software or other technology which may be subject to the export control laws and regulations of the United States, including the International Traffic in Arms Regulations (ITAR), 22 C.F.R. 120-130 and the Export Administration Act Regulations (EAR), 15 C.F.R. 730-774). The parties understand that this MOU creates no obligations beyond those already pursuant to existing U.S. law and the actions that may be taken by each party. Each party remains responsible for complying with all relevant export control laws and regulations as may be required for itself before exporting controlled data, information, software or other technology to foreign countries or providing access to foreign persons (as defined in 22 C.F.R. 120.16).

In the event that JPL is requested by IATTC to provide remote access accounts for its employees authorizing access to any JPL electronic library or server, JPL will, consistent with the requirements of existing U.S. law, require IATTC's Export Administrator to certify that its employees requesting access are U.S. persons (as defined in 22 C.F.R. 120.15).

VII. Publicity / Publication

- This MOU provides for no rights for IATTC to use the name or logos of the "California Institute of Technology," "Caltech," "Jet Propulsion Laboratory," "JPL," "National Aeronautics and Space Administration," or "NASA" in any advertising or publicity material, or make any form of representation or statement in relation to work performed under this MOU that would constitute an express or implied endorsement by Caltech, JPL or NASA of

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any commercial product, without written approval. Requests for written approval to use Caltech or JPL's name(s) or logo(s) under this MOU should be directed to the Manager of the Institutional Communications Office at JPL. Requests for written approval to use NASA's name or logo should be sent to NASA directly.

- This MOU provides for no rights for JPL to use the name or logos of the IATTC in any advertising or publicity material, or make any form of representation or statement in relation to work performed under this MOU that would constitute an express or implied endorsement by Caltech, JPL or NASA of any commercial product, without written approval. Requests for written approval to use IATTC name(s) or logo(s) under this MOU should be directed to Drs. Jon Lopez and Alex da Silva.

- JPL and IATTC may, consistent with the applicable law and the goals of this MOU, release general information regarding its own participation in this MOU. JPL and IATTC will confer and consult prior to the publication of unclassified information to ensure that no proprietary information or other controlled information is released and that patent rights are not jeopardized. Prior to submitting a manuscript for review that contains the results of research under this MOU, or prior to publication if no such review is made, each party will be offered thirty (30) days to review such proposed publication and to file a patent application in a timely manner.

VIII. Period of Activities and Cessation of Activities

This MOU continues from the latest date signed as indicated on the signature page through September 30, 2024, the date Task Order 80NM0018F0585 to Contract 80NM0018D0004 expires, unless sooner terminated in writing, by either party. This MOU may be extended by a written modification signed by both parties. As this MOU includes no binding obligations on either party, either party may cease activities specified in this MOU without notice at any time. However, each party will, as a courtesy, endeavor to provide 10 days' prior written notice to the other party. Such cessation of activities will incur no liability to either party.

IX. Points of Contact

Correspondence concerning this MOU will be directed to the following

Michael Jamesen

representatives:

For IATTC:	For JPL:
Dr. Jon Lopez	Michael Jameson
Head, By-catch Mitigation & Gear Technology Section	Contracts Manager
8901 La Jolla Shores Drive La Jolla, CA 92037-1509	4800 Oak Grove Drive Pasadena, CA 91109

X. Amendments / Modifications

Any changes to this document will be in writing.

Date: 09 -24 - 2021

Jean-Francois Pulvenis
Director (*ad interim*)
Inter-American Tropical Tuna Commission

Michael Jameson
Michael Jameson (Sep 27, 2021 12:10 PDT)

Sep 27, 2021
Date:

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Contracts Manager
California Institute of Technology
Jet Propulsion Laboratory

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