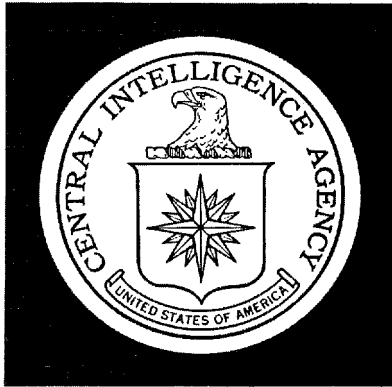


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DIRECTORATE OF
INTELLIGENCE

Intelligence Memorandum

Soviet Efforts to Improve Geodetic Positioning in the Southeast Pacific, Including Easter Island

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CIA/BGI GM 69-2
November 1968

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Summary

A survey underway in the South Pacific by the Akademik Kurchatov, the latest class Soviet research ship, will include coverage off mainland Chile and Easter Island. This is the latest Soviet show of interest -- not always scientific -- in Easter Island, which began in 1958 and was repeated on four other occasions. The newest survey track will be similar to one undertaken 10 years ago by the Soviet Antarctic flagship Ob' on its return from the Antarctic; however, the use of a modern ship with sophisticated instrumentation will significantly enhance the value of this cruise. By improving geodetic positioning in the area of coverage, the USSR can importantly advance its development of a world geodetic system for military as well as scientific purposes.

Note: This memorandum was produced by CIA. It was prepared by the Office of Basic and Geographic Intelligence and coordinated with the Foreign Missile and Space Analysis Center, the Office of Scientific Intelligence, and the Office of Strategic Research.

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1. On 10 August 1968 the Soviet newspaper Vodnyy Transport reported the departure 2 days earlier of the Akademik Kurchatov on its fourth cruise. Previously, the ship had (a) conducted surveys in the Atlantic Ocean off Africa, as far south as the Equator (early in 1967), (b) operated in the Arabian Sea and the northwest Indian Ocean and landed geophysical, geological, and biological parties on various islands (later in 1967), and (c) completed 3° latitudinal profiles between 5°S and 23°S in the Atlantic, seaward from the African coast (early this year).

2. Ostensibly, the main purpose of the present cruise is to make a scientific study of the southeast Pacific, particularly its biology, in order to discover why this region has the highest concentration of anchovies per unit of area and is the leading anchovy producer in the world. The voyage program also includes the types of observations in hydrology, meteorology, ionospherics, geology, hydrochemistry, biology, and seabottom topography that are standard for this class of Soviet research ships. The scientific leadership of the cruise by the outstanding Soviet biologist Lev Zenkevich and a staff of other well-known biologists promises a survey of high technical quality. The high caliber of the scientists may be designed, in part, to make a favorable impression on foreign scientists and government officials, especially Chileans.

3. The ship is proceeding from Kaliningrad, crossing the Atlantic Ocean, passing through the Panama Canal, and following a triangular course along the coast of Chile, to Easter Island, the Galapagos Islands, and the Panama Canal. Unlike the Ob' with its improvised gravity instrumentation of 10 years ago, the Akademik Kurchatov includes a gravimetry laboratory among its 2 dozen primary laboratories. It probably has the newly developed Soviet automatic seaborne gravimeter using a quartz system on a stabilized platform, which is

claimed to produce accuracies of ± 5 milligals in moderate seas. When the ship is in port or stationary at sea, this gravimeter will yield not only substantially improved data but a larger number of observations as well. Additional advancements in survey data are likely to result from the use of improved automatic navigation equipment (to locate the observation stations at sea), improved depth recorders, and improved methods of measuring ship speed.

4. The USSR, in a note to Chile dated 6 May 1968, described plans to conduct biological studies in and beyond the territorial waters of Chile and Easter Island, but it did not mention the Galapagos Islands, which are included in the survey plans. There is no indication that any approach has been made to Ecuador, which governs the Galapagos Islands. The note's mention that "at port stops the correction of gravimetric observations is planned" is probably designed to avoid any future criticism of the collection of scientific data with strategic application for which prior clearance was not obtained.

5. In highlighting biological research in their press accounts and in the note to Chile, the Soviets are pursuing a characteristic habit of obscuring the full significance of their oceanographic operations. Only two laboratories on the Akademik Kurchatov are directly concerned with biology. Although biology may be given special emphasis because of the presence of top scientists in the field, the collection of other observations by the remaining laboratories will further the Soviet program of building a worldwide data bank on the total physical environment. Such data, according to Soviet rationale, have universal application to all problems -- scientific, economic, and military. Thus, ocean-bottom surveying and charting not only are important to the study of ocean dynamics and biological phenomena but, when combined with accurate locational data (provided by the "radar,

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Decca, Loran, and other navigational aids" stated to be on board), also can provide vital military benefits such as reference points for the operational positioning of nuclear submarines. The collection of gravity data, for example, is essential for deriving the external gravity field of the earth, improving intercontinental missile target location, correcting the effect of gravity anomalies along the flightpath of the ICBM, and monitoring the inertial navigation system. If doppler navigation receivers are carried on board, the observations at port stops will yield accurate geocentric positions that will contribute to the development of a world geodetic system.

6. The geodetic positioning of Easter Island could have other military or scientific applications, some of them highly speculative. In 1965 Easter Island was included in a Soviet-discussed worldwide net of 13 stations for passive geodetic satellite observations. No further developments are known, but the Soviets may be contemplating such a tracking station for their space operations. They could request permission from Chile to establish a station on Easter Island under the terms of Article X of the Outer Space Treaty to which both the USSR and Chile are signatories. If such a station were established and allowed to operate indefinitely, it could covertly incorporate a military-associated facility.




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9. Soviet interest in Easter Island has previously been evinced by several visits to the island. Among those were visits early in March 1961 by the nonmagnetic ship Zarya 

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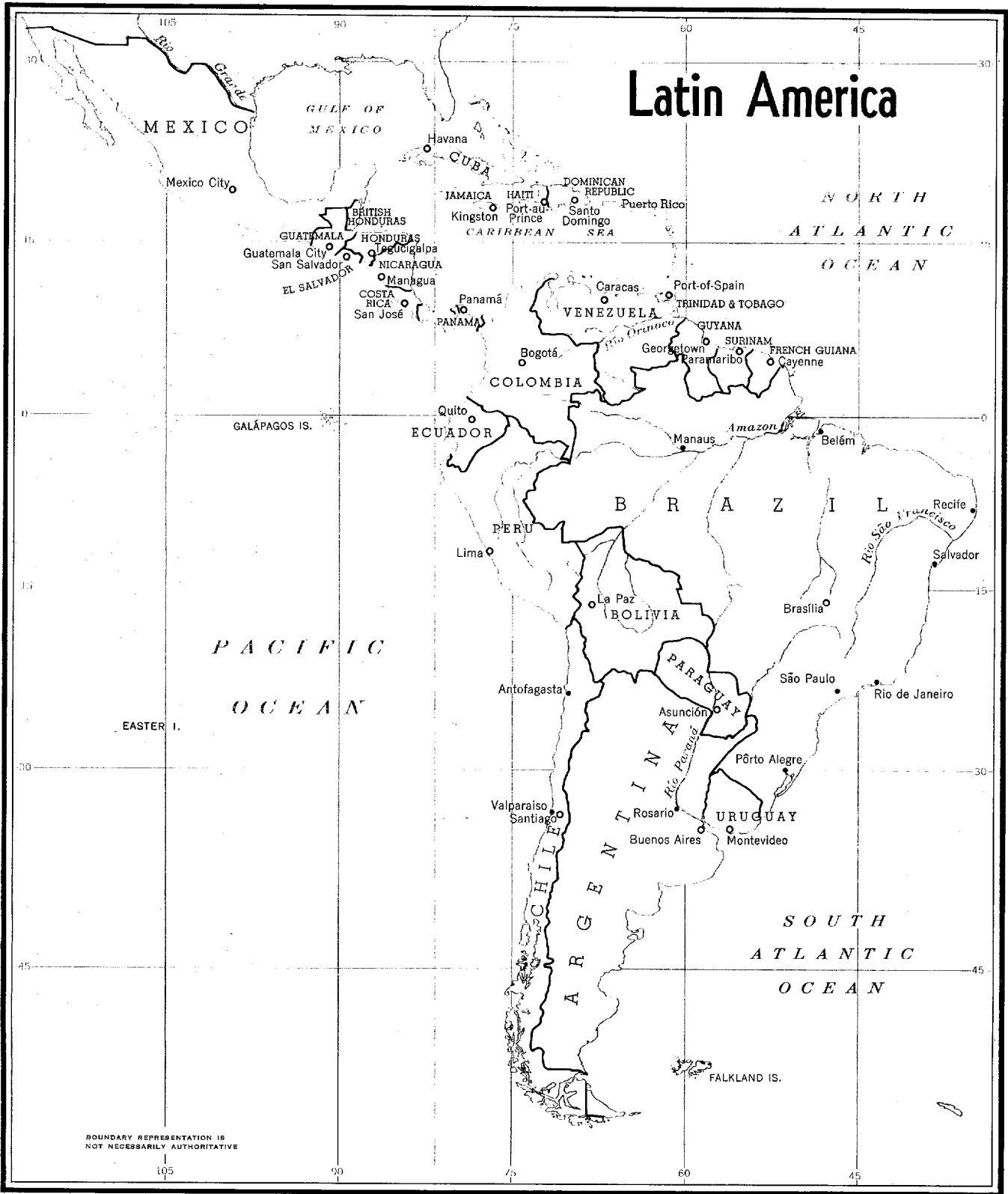
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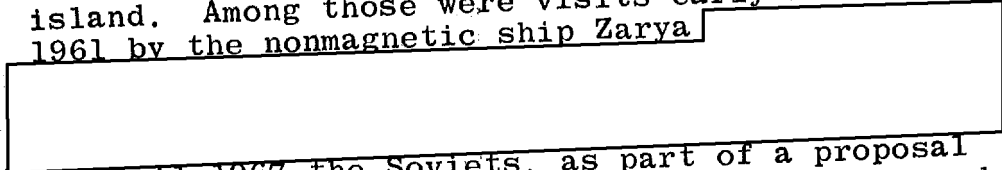
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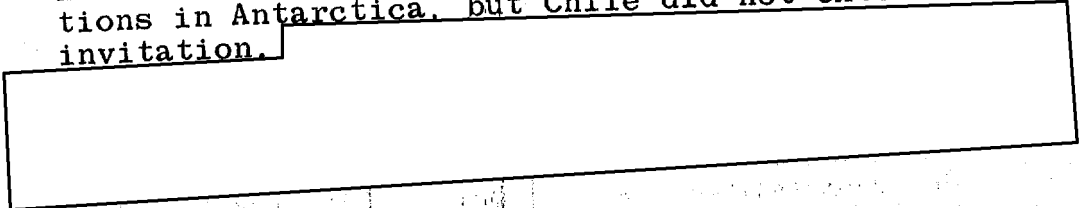
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