## Seventeenth session

Kingston, Jamaica
11-22 July 2011
Report and recommendations to the Council of the International Seabed Authority relating to an application for approval of a plan of work for exploration for polymetallic sulphides by the Government of the Russian Federation

Submitted by the Legal and Technical Commission

## I. Introduction

1. On 24 December 2010, the Secretary-General of the International Seabed Authority received an application for the approval of a plan of work for exploration for polymetallic sulphides in the Area. The application was submitted pursuant to the Regulations on prospecting and exploration for polymetallic sulphides in the Area (ISBA/16/A/12/Rev.1, annex) by the Government of the Russian Federation. The area under application consists of 100 blocks measuring approximately 10 kilometres by 10 kilometres each which are grouped into seven clusters, each containing from 8 to 36 blocks. The clusters are not contiguous but proximate and confined within a rectangular area covering 216,622 square kilometres.
2. In accordance with regulation 22 (c) of the Regulations, on 18 January 2011, the Secretary-General notified all members of the Authority of the receipt of the application and circulated information of a general nature concerning the application. In accordance with regulation 23, the Secretary-General further informed the members of the Legal and Technical Commission, by letter dated 19 January 2011, of the receipt of that application and that the application had been placed as an item on the agenda of the Commission at its next meeting.

## II. Methodology and consideration of the application by the Legal and Technical Commission

## A. General methodology applied by the Commission in consideration of the application

3. In its consideration of the application, the Commission noted that, in keeping with the scheme established in annex III, article 6, of the United Nations Convention on the Law of the Sea, it was first required to make an objective determination as to whether the applicant had fulfilled the requirements contained in the Regulations, particularly with respect to the form of applications; whether the applicant had provided the necessary undertakings and assurances specified in regulation 15 ; and whether it had the necessary financial and technical capability to carry out the proposed plan of work for exploration and, as applicable, had satisfactorily discharged its obligations under any previous contract with the Authority. The Commission is then required to determine, in accordance with regulation 23 (4) of the Regulations and its procedure, whether the proposed plan of work will provide for effective protection of human health and safety and effective protection and preservation of the marine environment and will ensure that installations are not established where interference may be caused to the use of recognized sea lanes essential to international navigation or in areas of intense fishing activity. Regulation 23 (5) provides that:

If the Commission makes the determinations specified in paragraph 3 and determines that the proposed plan of work for exploration meets the requirements of paragraph 4 , the Commission shall recommend approval of the plan of work for exploration to the Council.
4. In considering the proposed plan of work for exploration, the Commission had regard to the principles, policies and objectives relating to activities in the Area as provided for in part XI and annex III of the Convention and in the Agreement relating to the Implementation of Part XI of the United Nations Convention on the Law of the Sea of 10 December 1982, in accordance with regulation 23 (10) of the Regulations.

## B. Consideration of the application

5. The Commission considered the application in closed meetings on 8 July 2011.
6. Prior to commencing a detailed examination of the application, the Commission invited the applicant's representative, Sergei Efimovich Donskoi, Deputy Minister, accompanied by Mikhail Sergeev, Chief Geologist of the Polar Marine Geosurvey Expedition, and Georgy Cherkashov, Deputy Director of the VNIIOkeangeologia, to make a presentation of the application. Members of the Commission then asked questions to clarify certain aspects of the application before convening in closed session to examine the application in detail.

## III. Summary of basic information regarding the application

## A. Identification of the applicant

7. Name of applicant: Ministry of Natural Resources and Ecology of the Russian Federation.
8. Address of applicant:
(a) Street address: Russia, 123995, Moscow, Bolshaya Gruzinskaya Street, 4/6.
(b) Postal address: Russia, 123995, Moscow, Bolshaya Gruzinskaya Street, 4/6.
(c) Telephone number: $74992544800,74992540174,74992548155$;
(d) Fax number: 749925443 10, 749925466 10, 749925433 61;
(e) E-mail address: gageel@mnr.gov.ru, tbykova@mnr.gov.ru.
9. Applicant's designated representative:
(a) Sergei Efimovich Donskoi, Deputy Minister for Natural Resources and Ecology.
(b) Street address of applicant's designated representative: as above;
(c) Postal address: as above;
(d) Telephone number: 749925403 66;
(e) Fax number: 749925443 10, 749925466 10;
(f) E-mail address: sed@mnr.gov.ru.
10. Applicant's place of registration and principal place of business/domicile: Russia, 123995, Moscow, Bolshaya Gruzinskaya Street, 4/6.
11. The applicant is a State party to the Convention.
12. Date of deposit of instrument of ratification by the Russian Federation of the United Nations Convention on the Law of the Sea: 12 March 1997; date of the accession to the Agreement relating to the Implementation of Part XI of the United Nations Convention on the Law of the Sea of 10 December 1982: 12 March 1997.

## B. Area of application

13. The application area is located in the central part of the Atlantic Ocean in the axial zone of the Mid-Atlantic Ridge. It includes 100 blocks measuring approximately 10 kilometres by 10 kilometres each but not exceeding 100 square kilometres. The blocks under application are grouped into seven clusters each containing from 8 to 36 blocks. The clusters of blocks of polymetallic sulphides are not contiguous but are proximate and confined within a rectangular area covering 216,622 square kilometres. The longest side of the rectangular area is 897 kilometres. The coordinates and general location of the areas under application are shown in the annex to the present document.

## C. Other information

14. Date of receipt of application: 24 December 2010.
15. Previous contracts with the Authority: the applicant has not been previously awarded any contract with the Authority.
16. Undertakings: the applicant attached a written undertaking dated 29 October 2010 and signed by the Deputy Minister, S. E. Donskoi, in compliance with regulation 15 of the Regulations.
17. The applicant elects to offer an equity interest in a joint venture arrangement in accordance with regulation 19.
18. The applicant has paid a fee of $\$ 500,000$ for its application in accordance with regulation 21 (1) (a) of the Regulations.

## IV. Examination of information and technical data submitted by the applicant

19. The following technical documents were submitted in the application:
(a) Certificate of sponsorship issued by the applicant;
(b) Information relating to the area under application:
(i) Chart of the location of the blocks;
(ii) A list of the coordinates of the corners of blocks under application;
(c) Information to enable the Council to determine whether the applicant is financially capable of carrying out the proposed plan of work for exploration;
(d) Information to enable the Council to determine whether the applicant is technically capable of carrying out the proposed plan of work for exploration;
(e) Indicative plan of work for exploration;
(f) Training programme;
(g) Written undertakings by the applicant;
(h) Document designating the Deputy Minister of the Ministry of Natural Resources and Ecology as the representative of the applicant and authorizing him to sign the application for approval of the plan of work for exploration.

## V. Consideration of financial and technical qualifications of the applicant

## A. Financial capacity

20. In evaluating the financial capacity of the applicant, the Commission noted that the applicant had declared its financial capacity to carry out the proposed plan of work for exploration and to fulfil its financial obligations to the Authority. The Commission was provided with a statement dated 29 October 2010 and signed by
the designated representative of the applicant, certifying that the applicant would have the necessary funds to meet the estimated minimum expenditures under the proposed plan of work and to fulfil its financial obligations.

## B. Technical capacity

21. The Commission was provided with technical information in relation to the applicant's experience and skills in the field of scientific research on polymetallic sulphide deposits. The applicant further stated that specialized Russian institutes and the Russian Academy of Sciences had been conducting marine scientific studies of polymetallic sulphides in the Area since 1993. Moreover, in recent years, the applicant itself has carried out studies of the ore-bearing capacity of the axial zone of the Mid-Atlantic Ridge, including the location of the proposed application area, almost every year.
22. The Commission was provided with information related to the prevention, reduction and control of hazards and possible impact to the marine environment. This included the description of a plan for a programme for oceanographic and environmental studies at sites adjacent to the sites of pilot mining on inactive ore sites. In addition, the applicant proposed to conduct environmental studies at active sites inhabited by hydrothermal fauna. This is to ensure that the exploration activities will have minimal impact on the marine environment. It enclosed a plan of action to take necessary measures to prevent, reduce and control pollution and other hazards to the marine environment arising from the exploration activities. It also enclosed a description of a monitoring programme and proposed measures for the prevention, reduction and control of pollution and other hazards, as well as their possible impact, in the marine environment. The applicant also stated that it welcomed the participation of the Authority and the international scientific community in the development of the parameters and guidelines for the establishment of environmental baselines during the exploration phase.

## VI. Consideration of data and information submitted for approval of the plan of work for exploration

23. In accordance with regulation 20 of the Regulations, the applicant submitted the following information for approval of the plan of work for exploration:
(a) A general description and a schedule of the proposed exploration programme, including the programme of activities for the immediate five-year period, such as studies to be undertaken in respect of the environmental, technical, economic and other appropriate factors that must be taken into account in exploration;
(b) An undertaking to provide a description of the programme for oceanographic and environmental baseline studies in accordance with the Regulations and any environmental rules, regulations and procedures established by the Authority. Such studies would enable an assessment of the potential environmental impact including, but not restricted to, the impact on biodiversity of the proposed exploration activities, taking into account any recommendations issued by the Legal and Technical Commission;
(c) A preliminary assessment of the possible impact of the proposed exploration activities on the marine environment;
(d) A description of proposed measures for the prevention, reduction and control of pollution and other hazards, as well as possible impact, to the marine environment;
(e) Data necessary for the Council to make the determination it is required to make in accordance with regulation 13 (1);
(f) A schedule of anticipated yearly expenditures in respect of the programme of activities for the first five-year period.
24. The Commission was satisfied that the information presented met the requirements of the Regulations and noted that it looked forward to the submission of reports, including relevant data, by the applicant as required by the Regulations and any recommendations for guidance to be issued by the Commission in due course. The Commission also acknowledged with appreciation that, in response to questions by the Commission, the applicant's representatives had indicated their willingness to provide the Authority with access to extensive historical data sets from marine scientific research conducted by the Russian Federation over many years on the Mid-Atlantic Ridge.

## VII. Training programme

25. The applicant indicated that, in accordance with regulation 29 and of annex 4, section 8, of the Regulations, the contractor will develop training programmes in cooperation with the Authority and will submit the programmes to the Authority for approval.

## VIII. Conclusion and recommendations

26. Having examined the particulars submitted by the applicant, which are summarized in sections III to VII above, the Commission is satisfied that the application has been duly submitted in accordance with the Regulations and that the applicant is a qualified applicant within the meaning of annex III, article 4, of the Convention. The Commission is further satisfied that the applicant:
(a) Has complied with the provisions of the Regulations;
(b) Has given the undertakings and assurances specified in regulation 15 of the Regulations;
(c) Possesses the financial and technical capability to carry out the proposed plan of work for exploration.
27. The Commission is satisfied that none of the conditions in regulation 23 (6) of the Regulations apply.
28. With respect to the proposed plan of work for exploration, the Commission is satisfied that the proposed plan of work for exploration will:
(a) Provide for effective protection of human health and safety;
(b) Provide for effective protection and preservation of the marine environment;
(c) Ensure that installations are not established where interference may be caused to the use of recognized sea lanes essential to international navigation or in areas of intense fishing activity.
29. Accordingly, pursuant to regulation 23 (5), the Commission recommends to the Council that the plan of work for exploration for polymetallic sulphides submitted by the Government of the Russian Federation be approved.

## Annex

## List of coordinates and map of general location of the area under application

| Block number | Longitude | Latitude | Longitude (decimal degrees) | Latitude (decimal degrees) | Area $\mathrm{km}^{2}$ |
| :---: | :---: | :---: | :---: | :---: | :---: |
| 1 | 45º $43 ' 22.26{ }^{\prime \prime} \mathrm{W}$ | $20^{\circ} 49^{\prime} 24.82^{\prime \prime} \mathrm{N}$ | -45.72285132 | 20.82356118 | 100 |
|  | 45* $43{ }^{\prime} 23.82^{\prime \prime} \mathrm{W}$ | $20^{\circ} 54^{\prime} 50.08^{\prime \prime} \mathrm{N}$ | -45.72328349 | 20.91391182 |  |
|  | $45^{\circ} 49^{\prime} 8.22^{\prime \prime} \mathrm{W}$ | $20^{\circ} 49^{\prime} 23.26 " \mathrm{~N}$ | -45.81894965 | 20.82312901 |  |
|  | $45^{\circ} 49^{\prime} 9.98^{\prime \prime} \mathrm{W}$ | $20^{\circ} 54^{\prime} 48.52{ }^{\prime \prime} \mathrm{N}$ | -45.81943926 | 20.91347761 |  |
| 2 | $45^{\circ} 37 \prime 36.30^{\prime \prime} \mathrm{W}$ | $20^{\circ} 49^{\prime} 26.18^{\prime \prime} \mathrm{N}$ | -45.62675069 | 20.82393949 | 100 |
|  | $45^{\circ} 37{ }^{\prime} 37.65^{\prime \prime} \mathrm{W}$ | $20^{\circ} 54^{\prime} 51.45{ }^{\prime \prime} \mathrm{N}$ | -45.62712542 | 20.91429192 |  |
|  | $45^{\circ} 43 ' 22.26 " \mathrm{~W}$ | $20^{\circ} 49^{\prime} 24.82{ }^{\prime \prime} \mathrm{N}$ | -45.72285132 | 20.82356118 |  |
|  | $45^{\circ} 43^{\prime} 23.82^{\prime \prime} \mathrm{W}$ | $20^{\circ} 54^{\prime} 50.08^{\prime \prime} \mathrm{N}$ | -45.72328349 | 20.91391182 |  |
| 3 | $45^{\circ} 43^{\prime} 20.72^{\prime \prime} \mathrm{W}$ | $20^{\circ} 43 ' 59.55^{\prime \prime} \mathrm{N}$ | -45.72242145 | 20.73320958 | 100 |
|  | $45^{\circ} 43^{\prime} 22.26^{\prime \prime} \mathrm{W}$ | $20^{\circ} 49^{\prime} 24.82^{\prime \prime} \mathrm{N}$ | -45.72285132 | 20.82356118 |  |
|  | $45^{\circ} 49^{\prime} 6.47{ }^{\prime \prime} \mathrm{W}$ | $20^{\circ} 43 ' 58.01^{\prime \prime} \mathrm{N}$ | -45.81846264 | 20.73277945 |  |
|  | $45^{\circ} 49^{\prime} 8.22^{\prime \prime} \mathrm{W}$ | $20^{\circ} 49^{\prime} 23.26{ }^{\prime \prime} \mathrm{N}$ | -45.81894965 | 20.82312901 |  |
| 4 | $45^{\circ} 37{ }^{\prime} 34.96{ }^{\prime \prime} \mathrm{W}$ | $20^{\circ} 44^{\prime} 0.91{ }^{\prime \prime} \mathrm{N}$ | -45.62637796 | 20.7335861 | 100 |
|  | $45^{\circ} 37 \prime 36.30^{\prime \prime} \mathrm{W}$ | $20^{\circ} 49^{\prime} 26.18^{\prime \prime} \mathrm{N}$ | -45.62675069 | 20.82393949 |  |
|  | $45^{\circ} 43^{\prime} 20.72^{\prime \prime} \mathrm{W}$ | $20^{\circ} 43^{\prime} 59.55^{\prime \prime} \mathrm{N}$ | -45.72242145 | 20.73320958 |  |
|  | $45^{\circ} 43^{\prime} 22.26{ }^{\prime \prime} \mathrm{W}$ | $20^{\circ} 49^{\prime} 24.82^{\prime \prime} \mathrm{N}$ | -45.72285132 | 20.82356118 |  |
| 5 | $45^{\circ} 43^{\prime} 19.18^{\prime \prime} \mathrm{W}$ | $20^{\circ} 38^{\prime} 34.29{ }^{\prime \prime} \mathrm{N}$ | -45.72199387 | 20.64285702 | 100 |
|  | $45^{\circ} 43^{\prime} 20.72^{\prime \prime} \mathrm{W}$ | $20^{\circ} 43^{\prime} 59.55^{\prime \prime} \mathrm{N}$ | -45.72242145 | 20.73320958 |  |
|  | $45^{\circ} 49^{\prime} 4.72^{\prime \prime} \mathrm{W}$ | $20^{\circ} 38^{\prime} 32.74{ }^{\prime \prime} \mathrm{N}$ | -45.81797823 | 20.64242893 |  |
|  | $45^{\circ} 49^{\prime} 6.47{ }^{\prime \prime} \mathrm{W}$ | $20^{\circ} 43 ' 58.01^{\prime \prime} \mathrm{N}$ | -45.81846264 | 20.73277945 |  |
| 6 | $45^{\circ} 49^{\prime} 2.99^{\prime \prime} \mathrm{W}$ | $20^{\circ} 33^{\prime} 7.48^{\prime \prime} \mathrm{N}$ | -45.81749642 | 20.55207746 | 100 |
|  | $45^{\circ} 49^{\prime} 4.72^{\prime \prime} \mathrm{W}$ | $20^{\circ} 38^{\prime} 32.74{ }^{\prime \prime} \mathrm{N}$ | -45.81797823 | 20.64242893 |  |
|  | $45^{\circ} 54^{\prime} 48.32{ }^{\prime \prime} \mathrm{W}$ | $20^{\circ} 33^{\prime} 5.75^{\prime \prime} \mathrm{N}$ | -45.91342167 | 20.55159832 |  |
|  | 45 ${ }^{\circ} 54^{\prime} 50.26{ }^{\prime \prime} \mathrm{W}$ | $20^{\circ} 38^{\prime} 31.01^{\prime \prime} \mathrm{N}$ | -45.91396001 | 20.6419475 |  |
| 7 | $45^{\circ} 43^{\prime} 17.65^{\prime \prime} \mathrm{W}$ | $20^{\circ} 33{ }^{\prime} 9.01{ }^{\prime \prime} \mathrm{N}$ | -45.72156858 | 20.55250351 | 100 |
|  | 45 ${ }^{\circ} 43^{\prime} 19.18^{\prime \prime} \mathrm{W}$ | $20^{\circ} 38^{\prime} 34.29^{\prime \prime} \mathrm{N}$ | -45.72199387 | 20.64285702 |  |
|  | 45* 49' 2.99" W | $20^{\circ} 33^{\prime} 7.48^{\prime \prime} \mathrm{N}$ | -45.81749642 | 20.55207746 |  |
|  | $45^{\circ} 49^{\prime} 4.72^{\prime \prime} \mathrm{W}$ | $20^{\circ} 38^{\prime} 32.74{ }^{\prime \prime} \mathrm{N}$ | -45.81797823 | 20.64242893 |  |
| 8 | $45^{\circ} 37 \prime 30.98^{\prime \prime} \mathrm{W}$ | $20^{\circ} 27^{\prime} 45.07{ }^{\prime \prime} \mathrm{N}$ | -45.62527168 | 20.46252021 | 100 |
|  | $45^{\circ} 37{ }^{\prime} 32.30{ }^{\prime \prime} \mathrm{W}$ | $20^{\circ} 33^{\prime} 10.36{ }^{\prime \prime} \mathrm{N}$ | -45.62563846 | 20.55287645 |  |
|  | $45^{\circ} 43^{\prime} 16.12^{\prime \prime} \mathrm{W}$ | $20^{\circ} 27^{\prime} 43.74{ }^{\prime \prime} \mathrm{N}$ | -45.72114557 | 20.46214904 |  |
|  | $45^{\circ} 43^{\prime} 17.65^{\prime \prime} \mathrm{W}$ | $20^{\circ} 33^{\prime} 9.01{ }^{\prime \prime} \mathrm{N}$ | -45.72156858 | 20.55250351 |  |
| 9 | $45^{\circ} 31{ }^{\prime} 45.82^{\prime \prime} \mathrm{W}$ | $20^{\circ} 27^{\prime} 46.22^{\prime \prime} \mathrm{N}$ | -45.52939581 | 20.46283852 | 100 |
|  | 45º 31' 46.94" W | $20^{\circ} 33^{\prime} 11.51^{\prime \prime} \mathrm{N}$ | -45.52970635 | 20.55319629 |  |



| Block <br> number | Longitude | Latitude | Longitude (decimal degrees) | Latitude (decimal degrees) | Area $\mathrm{km}^{2}$ |
| :---: | :---: | :---: | :---: | :---: | :---: |
| 19 | 45º 54' 35.04" W | $19^{\circ} 55^{\prime} 8.86^{\prime \prime} \mathrm{N}$ | -45.90973382 | 19.91912752 | 100 |
|  | 45* 54' 36.91" W | $20^{\circ} 0^{\prime} 34.14{ }^{\prime \prime} \mathrm{N}$ | -45.91025209 | 20.00948331 |  |
|  | $46^{\circ} 0^{\prime} 18.97{ }^{\prime \prime} \mathrm{W}$ | $19^{\circ} 55^{\prime} 7.01^{\prime \prime} \mathrm{N}$ | -46.00526906 | 19.91861304 |  |
|  | $46^{\circ} 0^{\prime} 21.03^{\prime \prime} \mathrm{W}$ | $20^{\circ} 0^{\prime} 32.28^{\prime \prime} \mathrm{N}$ | -46.00584173 | 20.0089663 |  |
| 20 | $45^{\circ} 43^{\prime} 7.16^{\prime \prime} \mathrm{W}$ | $19^{\circ} 55^{\prime} 12.01{ }^{\prime \prime} \mathrm{N}$ | -45.71865513 | 19.92000252 | 100 |
|  | $45^{\circ} 43^{\prime} 8.63{ }^{\prime \prime} \mathrm{W}$ | $20^{\circ} 0^{\prime} 37.31^{\prime \prime} \mathrm{N}$ | -45.71906457 | 20.0103626 |  |
|  | $45^{\circ} 48{ }^{\prime} 51.10^{\prime \prime} \mathrm{W}$ | $19^{\circ} 55^{\prime} 10.53{ }^{\prime \prime} \mathrm{N}$ | -45.81419574 | 19.91959068 |  |
|  | $45^{\circ} 48^{\prime} 52.77{ }^{\prime \prime} \mathrm{W}$ | $20^{\circ} 0^{\prime} 35.82^{\prime \prime} \mathrm{N}$ | -45.8146596 | 20.00994874 |  |
| 21 | $46^{\circ} 0^{\prime} 16.92^{\prime \prime} \mathrm{W}$ | $19^{\circ} 49^{\prime} 41.73{ }^{\prime \prime} \mathrm{N}$ | -46.00469952 | 19.82825884 | 100 |
|  | $46^{\circ} 0^{\prime} 18.97{ }^{\prime \prime} \mathrm{W}$ | $19^{\circ} 55^{\prime} 7.01{ }^{\prime \prime} \mathrm{N}$ | -46.00526906 | 19.91861304 |  |
|  | $46^{\circ} 6^{\prime} 0.64{ }^{\prime \prime} \mathrm{W}$ | $19^{\circ} 49^{\prime} 39.70{ }^{\prime \prime} \mathrm{N}$ | -46.10017753 | 19.82769582 |  |
|  | $46^{\circ} 6^{\prime} 2.88^{\prime \prime} \mathrm{W}$ | $19^{\circ} 55^{\prime} 4.97{ }^{\prime \prime} \mathrm{N}$ | -46.10080116 | 19.91804724 |  |
| 22 | $45^{\circ} 54^{\prime} 33.19^{\prime \prime} \mathrm{W}$ | $19^{\circ} 49^{\prime} 43.57{ }^{\prime \prime} \mathrm{N}$ | -45.90921839 | 19.8287708 | 100 |
|  | $45^{\circ} 54{ }^{\prime} 35.04{ }^{\prime \prime} \mathrm{W}$ | $19^{\circ} 55^{\prime} 8.86^{\prime \prime} \mathrm{N}$ | -45.90973382 | 19.91912752 |  |
|  | $46^{\circ} 0^{\prime} 16.92^{\prime \prime} \mathrm{W}$ | $19^{\circ} 49^{\prime} 41.73{ }^{\prime \prime} \mathrm{N}$ | -46.00469952 | 19.82825884 |  |
|  | $46^{\circ} 0^{\prime} 18.97{ }^{\prime \prime} \mathrm{W}$ | $19^{\circ} 55^{\prime} 7.01{ }^{\prime \prime} \mathrm{N}$ | -46.00526906 | 19.91861304 |  |
| 23 | $45^{\circ} 48^{\prime} 49.44^{\prime \prime} \mathrm{W}$ | $19^{\circ} 49^{\prime} 45.23{ }^{\prime \prime} \mathrm{N}$ | -45.81373443 | 19.82923168 | 100 |
|  | $45^{\circ} 48^{\prime} 51.10^{\prime \prime} \mathrm{W}$ | $19^{\circ} 55^{\prime} 10.53{ }^{\prime \prime} \mathrm{N}$ | -45.81419574 | 19.91959068 |  |
|  | $45^{\circ} 54{ }^{\prime} 33.19^{\prime \prime} \mathrm{W}$ | $19^{\circ} 49^{\prime} 43.57{ }^{\prime \prime} \mathrm{N}$ | -45.90921839 | 19.8287708 |  |
|  | 45 ${ }^{\circ} 54^{\prime} 35.04^{\prime \prime} \mathrm{W}$ | $19^{\circ} 55^{\prime} 8.86^{\prime \prime} \mathrm{N}$ | -45.90973382 | 19.91912752 |  |
| 24 | $45^{\circ} 43{ }^{\text {c }} 5.69^{\prime \prime} \mathrm{W}$ | $19^{\circ} 49^{\prime} 46.71{ }^{\prime \prime} \mathrm{N}$ | -45.71824793 | 19.8296415 | 100 |
|  | 45 ${ }^{\circ} 43^{\prime} 7.16^{\prime \prime} \mathrm{W}$ | $19^{\circ} 55^{\prime} 12.01{ }^{\prime \prime} \mathrm{N}$ | -45.71865513 | 19.92000252 |  |
|  | 45 ${ }^{\circ} 48^{\prime} 49.44^{\prime \prime} \mathrm{W}$ | $19^{\circ} 49^{\prime} 45.23{ }^{\prime \prime} \mathrm{N}$ | -45.81373443 | 19.82923168 |  |
|  | $45^{\circ} 48^{\prime} 51.10^{\prime \prime} \mathrm{W}$ | $19^{\circ} 55^{\prime} 10.53{ }^{\prime \prime} \mathrm{N}$ | -45.81419574 | 19.91959068 |  |
| 25 | $45^{\circ} 54{ }^{\prime} 31.34{ }^{\prime \prime} \mathrm{W}$ | $19^{\circ} 44^{\prime} 18.29{ }^{\prime \prime} \mathrm{N}$ | -45.90870579 | 19.73841315 | 100 |
|  | $45^{\circ} 54^{\prime} 33.19^{\prime \prime} \mathrm{W}$ | $19^{\circ} 49^{\prime} 43.57{ }^{\prime \prime} \mathrm{N}$ | -45.90921839 | 19.8287708 |  |
|  | $46^{\circ} 0^{\prime} 14.88^{\prime \prime} \mathrm{W}$ | $19^{\circ} 44^{\prime} 16.45^{\prime \prime} \mathrm{N}$ | -46.00413311 | 19.73790371 |  |
|  | $46^{\circ} 0^{\prime} 16.92^{\prime \prime} \mathrm{W}$ | $19^{\circ} 49^{\prime} 41.73{ }^{\prime \prime} \mathrm{N}$ | -46.00469952 | 19.82825884 |  |
| 26 | $45^{\circ} 48^{\prime} 47.79^{\prime \prime} \mathrm{W}$ | $19^{\circ} 44^{\prime} 19.94{ }^{\prime \prime} \mathrm{N}$ | -45.81327564 | 19.73887177 | 100 |
|  | $45^{\circ} 48^{\prime} 49.44{ }^{\prime \prime} \mathrm{W}$ | $19^{\circ} 49^{\prime} 45.23{ }^{\prime \prime} \mathrm{N}$ | -45.81373443 | 19.82923168 |  |
|  | 45 ${ }^{\circ} 54^{\prime} 31.34{ }^{\prime \prime} \mathrm{W}$ | $19^{\circ} 44^{\prime} 18.29{ }^{\prime \prime} \mathrm{N}$ | -45.90870579 | 19.73841315 |  |
|  | $45^{\circ} 54^{\prime} 33.19^{\prime \prime} \mathrm{W}$ | $19^{\circ} 49^{\prime} 43.57^{\prime \prime} \mathrm{N}$ | -45.90921839 | 19.8287708 |  |
| 27 | $46^{\circ} 32 \cdot 31.47{ }^{\prime \prime} \mathrm{W}$ | $17^{\circ} 56{ }^{\prime} 42.38{ }^{\prime \prime} \mathrm{N}$ | -46.54207397 | 17.94510591 | 100 |
|  | 46³ 32' 34.29" W | $18^{\circ} 2^{\prime} 7.65^{\prime \prime} \mathrm{N}$ | -46.54285927 | 18.03545946 |  |
|  | $46^{\circ} 38^{\prime} 11.29^{\prime \prime} \mathrm{W}$ | $17^{\circ} 56^{\prime} 39.60^{\prime \prime} \mathrm{N}$ | -46.63647011 | 17.94433355 |  |
|  | $46^{\circ} 38^{\prime} 14.29^{\prime \prime} \mathrm{W}$ | $18^{\circ} 2^{\prime} 4.86^{\prime \prime} \mathrm{N}$ | -46.63730342 | 18.03468296 |  |
| 28 | $46^{\circ} 26^{\prime} 51.62^{\prime \prime} \mathrm{W}$ | $17^{\circ} 56^{\prime} 45.00^{\prime \prime} \mathrm{N}$ | -46.44767323 | 17.94583243 | 100 |
|  | $46^{\circ} 26^{\prime} 54.28^{\prime \prime} \mathrm{W}$ | $18^{\circ} 2^{\prime} 10.28^{\prime \prime} \mathrm{N}$ | -46.44841049 | 18.03618989 |  |


| Block number | Longitude | Latitude | Longitude (decimal degrees) | Latitude (decimal degrees) | Area $\mathrm{km}^{2}$ |
| :---: | :---: | :---: | :---: | :---: | :---: |
|  | 46³ 32' 31.47" W | $17^{\circ} 56^{\prime} 42.38^{\prime \prime} \mathrm{N}$ | -46.54207397 | 17.94510591 |  |
|  | $46^{\circ} 32{ }^{\prime} 34.29^{\prime \prime} \mathrm{W}$ | $18^{\circ} 2^{\prime} 7.65^{\prime \prime} \mathrm{N}$ | -46.54285927 | 18.03545946 |  |
| 29 | 46º 32' $28.66^{\prime \prime} \mathrm{W}$ | $17^{\circ} 51^{\prime} 17.11{ }^{\prime \prime} \mathrm{N}$ | -46.54129329 | 17.85475148 | 100 |
|  | $46^{\circ} 32 \cdot 31.47{ }^{\prime \prime} \mathrm{W}$ | $17^{\circ} 56^{\prime} 42.38^{\prime \prime} \mathrm{N}$ | -46.54207397 | 17.94510591 |  |
|  | $46^{\circ} 38^{\prime} 11.29^{\prime \prime} \mathrm{W}$ | $17^{\circ} 56{ }^{\prime} 39.60{ }^{\prime \prime} \mathrm{N}$ | -46.63647011 | 17.94433355 |  |
|  | $46^{\circ} 38{ }^{\prime} 8.31 " \mathrm{~W}$ | $17^{\circ} 51{ }^{\prime} 14.34{ }^{\prime \prime} \mathrm{N}$ | -46.63564169 | 17.85398327 |  |
| 30 | 46º 26' 48.99" W | $17^{\circ} 51^{\prime} 19.71{ }^{\prime \prime} \mathrm{N}$ | -46.4469403 | 17.8554741 | 100 |
|  | $46^{\circ} 26^{\prime} 51.62^{\prime \prime} \mathrm{W}$ | $17^{\circ} 56^{\prime} 45.00^{\prime \prime} \mathrm{N}$ | -46.44767323 | 17.94583243 |  |
|  | $46^{\circ} 32^{\prime} 28.66^{\prime \prime} \mathrm{W}$ | $17^{\circ} 51^{\prime} 17.11{ }^{\prime \prime} \mathrm{N}$ | -46.54129329 | 17.85475148 |  |
|  | $46^{\circ} 32^{\prime} 31.47{ }^{\prime \prime} \mathrm{W}$ | $17^{\circ} 56^{\prime} 42.38^{\prime \prime} \mathrm{N}$ | -46.54207397 | 17.94510591 |  |
| 31 | $46^{\circ} 38^{\prime} 5.35^{\prime \prime} \mathrm{W}$ | $17^{\circ} 45^{\prime} 49.08{ }^{\prime \prime} \mathrm{N}$ | -46.63481814 | 17.76363211 | 100 |
|  | $46^{\circ} 38^{\prime} 8.31{ }^{\prime \prime} \mathrm{W}$ | $17^{\circ} 51^{\prime} 14.34{ }^{\prime \prime} \mathrm{N}$ | -46.63564169 | 17.85398327 |  |
|  | $46^{\circ} 43^{\prime} 44.81^{\prime \prime} \mathrm{W}$ | $17^{\circ} 45^{\prime} 46.16^{\prime \prime} \mathrm{N}$ | -46.72911421 | 17.76282271 |  |
|  | $46^{\circ} 43^{\prime} 47.95^{\prime \prime} \mathrm{W}$ | $17^{\circ} 51^{\prime} 11.41{ }^{\prime \prime} \mathrm{N}$ | -46.7299852 | 17.85316948 |  |
| 32 | $46^{\circ} 26^{\prime} 46.36{ }^{\prime \prime} \mathrm{W}$ | $17^{\circ} 45^{\prime} 54.41{ }^{\prime \prime} \mathrm{N}$ | -46.44621168 | 17.76511491 | 100 |
|  | $46^{\circ} 26^{\prime} 48.99^{\prime \prime} \mathrm{W}$ | $17^{\circ} 51^{\prime} 19.71{ }^{\prime \prime} \mathrm{N}$ | -46.4469403 | 17.8554741 |  |
|  | $46^{\circ} 32^{\prime} 25.86^{\prime \prime} \mathrm{W}$ | $17^{\circ} 45^{\prime} 51.83{ }^{\prime \prime} \mathrm{N}$ | -46.5405172 | 17.76439618 |  |
|  | $46^{\circ} 32{ }^{\prime} 28.66^{\prime \prime} \mathrm{W}$ | $17^{\circ} 51^{\prime} 17.11{ }^{\prime \prime} \mathrm{N}$ | -46.54129329 | 17.85475148 |  |
| 33 | $46^{\circ} 21^{\prime} 4.41^{\prime \prime} \mathrm{W}$ | $17^{\circ} 40^{\prime} 31.53{ }^{\prime \prime} \mathrm{N}$ | -46.35122473 | 17.67542459 | 100 |
|  | $46^{\circ} 21^{\prime} 6.85^{\prime \prime} \mathrm{W}$ | $17^{\circ} 45^{\prime} 56.84{ }^{\prime \prime} \mathrm{N}$ | -46.35190185 | 17.76578829 |  |
|  | $46^{\circ} 26^{\prime} 43.75^{\prime \prime} \mathrm{W}$ | $17^{\circ} 40^{\prime} 29.12^{\prime \prime} \mathrm{N}$ | -46.44548737 | 17.67475486 |  |
|  | $46^{\circ} 26^{\prime} 46.36^{\prime \prime} \mathrm{W}$ | $17^{\circ} 45^{\prime} 54.41{ }^{\prime \prime} \mathrm{N}$ | -46.44621168 | 17.76511491 |  |
| 34 | $46^{\circ} 21^{\prime} 1.99^{\prime \prime} \mathrm{W}$ | $17^{\circ} 35^{\prime} 6.22^{\prime \prime} \mathrm{N}$ | -46.35055163 | 17.58506004 | 100 |
|  | $46^{\circ} 21^{\prime} 4.41^{\prime \prime} \mathrm{W}$ | $17^{\circ} 40^{\prime} 31.53{ }^{\prime \prime} \mathrm{N}$ | -46.35122473 | 17.67542459 |  |
|  | $46^{\circ} 26^{\prime} 41.16^{\prime \prime} \mathrm{W}$ | $17^{\circ} 35^{\prime} 3.822^{\prime \prime} \mathrm{N}$ | -46.44476735 | 17.58439395 |  |
|  | $46^{\circ} 26^{\prime} 43.75^{\prime \prime} \mathrm{W}$ | $17^{\circ} 40^{\prime} 29.12^{\prime \prime} \mathrm{N}$ | -46.44548737 | 17.67475486 |  |
| 35 | $46^{\circ} 20^{\prime} 59.58^{\prime \prime} \mathrm{W}$ | $17^{\circ} 29^{\prime} 40.90{ }^{\prime \prime} \mathrm{N}$ | -46.34988254 | 17.49469464 | 100 |
|  | $46^{\circ} 21^{\prime} 1.99^{\prime \prime} \mathrm{W}$ | $17^{\circ} 35^{\prime} 6.22^{\prime \prime} \mathrm{N}$ | -46.35055163 | 17.58506004 |  |
|  | $46^{\circ} 26^{\prime} 38.59{ }^{\prime \prime} \mathrm{W}$ | $17^{\circ} 29^{\prime} 38.52^{\prime \prime} \mathrm{N}$ | -46.44405162 | 17.49403219 |  |
|  | $46^{\circ} 26^{\prime} 41.16^{\prime \prime} \mathrm{W}$ | 17* 35' $3.82{ }^{\prime \prime} \mathrm{N}$ | -46.44476735 | 17.58439395 |  |
| 36 | $46^{\circ} 26^{\prime} 28.43{ }^{\prime \prime} \mathrm{W}$ | 17 ${ }^{\circ} 7{ }^{\prime} 57.28^{\prime \prime} \mathrm{N}$ | -46.44123135 | 17.13257669 | 100 |
|  | $46^{\circ} 26^{\prime} 30.95^{\prime \prime} \mathrm{W}$ | 17* $13{ }^{\prime} 22.59^{\prime \prime} \mathrm{N}$ | -46.44193003 | 17.22294183 |  |
|  | $46^{\circ} 32^{\prime} 6.76{ }^{\prime \prime} \mathrm{W}$ | 17* ${ }^{\circ}$ '54.79" N | -46.53521241 | 17.13188512 |  |
|  | $46^{\circ} 322^{\prime} 9.44{ }^{\prime \prime} \mathrm{W}$ | $17^{\circ} 13^{\prime} 20.09^{\prime \prime} \mathrm{N}$ | -46.53595662 | 17.22224639 |  |
| 37 | $46^{\circ} 20^{\prime} 50.09^{\prime \prime} \mathrm{W}$ | $17^{\circ} 7{ }^{\prime} 59.61{ }^{\prime \prime} \mathrm{N}$ | -46.34724604 | 17.13322462 | 100 |
|  | 46² $20^{\prime} 52.44{ }^{\prime \prime} \mathrm{W}$ | 17* $13{ }^{\prime} 24.94{ }^{\prime \prime} \mathrm{N}$ | -46.3478992 | 17.22359338 |  |
|  | $46^{\circ} 26^{\prime} 28.43{ }^{\prime \prime} \mathrm{W}$ | 170 ${ }^{\circ}$ ' 57.28" N | -46.44123135 | 17.13257669 |  |
|  | $46^{\circ} 26^{\prime} 30.95^{\prime \prime} \mathrm{W}$ | $17^{\circ} 13 ' 22.59{ }^{\prime \prime} \mathrm{N}$ | -46.44193003 | 17.22294183 |  |


| Block number | Longitude | Latitude | Longitude (decimal degrees) | Latitude (decimal degrees) | Area $\mathrm{km}^{2}$ |
| :---: | :---: | :---: | :---: | :---: | :---: |
| 38 | 46²6' 25.93" W | $17^{\circ} 2^{\prime} 31.96{ }^{\prime \prime} \mathrm{N}$ | -46.4405369 | 17.04221072 | 100 |
|  | $46^{\circ} 26^{\prime} 28.43{ }^{\prime \prime} \mathrm{W}$ | $17^{\circ} 7{ }^{\prime} 57.28^{\prime \prime} \mathrm{N}$ | -46.44123135 | 17.13257669 |  |
|  | $46^{\circ} 32^{\prime} 4.10^{\prime \prime} \mathrm{W}$ | $17^{\circ} 2^{\prime} 29.48^{\prime \prime} \mathrm{N}$ | -46.53447272 | 17.04152301 |  |
|  | $46^{\circ} 32^{\prime} 6.76{ }^{\prime \prime} \mathrm{W}$ | $17^{\circ} 7{ }^{\prime} 54.79^{\prime \prime} \mathrm{N}$ | -46.53521241 | 17.13188512 |  |
| 39 | $46^{\circ} 20^{\prime} 47.75{ }^{\prime \prime} \mathrm{W}$ | $17^{\circ} 2^{\prime} 34.28^{\prime \prime} \mathrm{N}$ | -46.34659685 | 17.04285504 | 100 |
|  | $46^{\circ} 20^{\prime} 50.09^{\prime \prime} \mathrm{W}$ | $17^{\circ} 7{ }^{\prime} 59.61^{\prime \prime} \mathrm{N}$ | -46.34724604 | 17.13322462 |  |
|  | $46^{\circ} 26^{\prime} 25.93{ }^{\prime \prime} \mathrm{W}$ | $17^{\circ} 2^{\prime} 31.96{ }^{\prime \prime} \mathrm{N}$ | -46.4405369 | 17.04221072 |  |
|  | $46^{\circ} 26^{\prime} 28.43{ }^{\prime \prime} \mathrm{W}$ | $17^{\circ} 7{ }^{\prime} 57.28^{\prime \prime} \mathrm{N}$ | -46.44123135 | 17.13257669 |  |
| 40 | $46^{\circ} 26^{\prime} 23.45^{\prime \prime} \mathrm{W}$ | 16* 57' 6.64" N | -46.43984667 | 16.95184392 | 100 |
|  | $46^{\circ} 26^{\prime} 25.93$ " W | $17^{\circ} 2^{\prime} 31.96{ }^{\prime \prime} \mathrm{N}$ | -46.4405369 | 17.04221072 |  |
|  | $46^{\circ} 32^{\prime} 1.46^{\prime \prime} \mathrm{W}$ | $16^{\circ} 57^{\prime} 4.18^{\prime \prime} \mathrm{N}$ | -46.53373753 | 16.95116008 |  |
|  | $46^{\circ} 32^{\prime} 4.10^{\prime \prime} \mathrm{W}$ | $17^{\circ} 2^{\prime} 29.48^{\prime \prime} \mathrm{N}$ | -46.53447272 | 17.04152301 |  |
| 41 | $46^{\circ} 26^{\prime} 20.98^{\prime \prime} \mathrm{W}$ | $16^{\circ} 51^{\prime} 41.31{ }^{\prime \prime} \mathrm{N}$ | -46.43916067 | 16.8614763 | 100 |
|  | $46^{\circ} 26^{\prime} 23.45^{\prime \prime} \mathrm{W}$ | $16^{\circ} 57^{\prime} 6.64{ }^{\prime \prime} \mathrm{N}$ | -46.43984667 | 16.95184392 |  |
|  | $46^{\circ} 31^{\prime} 58.82{ }^{\prime \prime} \mathrm{W}$ | $16^{\circ} 51^{\prime} 38.87{ }^{\prime \prime} \mathrm{N}$ | -46.53300683 | 16.86079631 |  |
|  | $46^{\circ} 32^{\prime} 1.46^{\prime \prime} \mathrm{W}$ | $16^{\circ} 57{ }^{\prime} 4.18^{\prime \prime} \mathrm{N}$ | -46.53373753 | 16.95116008 |  |
| 42 | $46^{\circ} 31^{\prime} 56.21^{\prime \prime} \mathrm{W}$ | $16^{\circ} 46^{\prime} 13.55^{\prime \prime} \mathrm{N}$ | -46.53228062 | 16.77043172 | 100 |
|  | $46^{\circ} 31^{\prime} 58.82{ }^{\prime \prime} \mathrm{W}$ | $16^{\circ} 51^{\prime} 38.87{ }^{\prime \prime} \mathrm{N}$ | -46.53300683 | 16.86079631 |  |
|  | $46^{\circ} 37{ }^{\prime} 33.88^{\prime \prime} \mathrm{W}$ | $16^{\circ} 46^{\prime} 10.97{ }^{\prime \prime} \mathrm{N}$ | -46.62607789 | 16.76971292 |  |
|  | $46^{\circ} 37{ }^{\prime} 36.65^{\prime \prime} \mathrm{W}$ | $16^{\circ} 51^{\prime} 36.26^{\prime \prime} \mathrm{N}$ | -46.62684851 | 16.86007342 |  |
| 43 | $46^{\circ} 26^{\prime} 18.52^{\prime \prime} \mathrm{W}$ | $16^{\circ} 46^{\prime} 15.99^{\prime \prime} \mathrm{N}$ | -46.43847887 | 16.77110785 | 100 |
|  | $46^{\circ} 26^{\prime} 20.98^{\prime \prime} \mathrm{W}$ | $16^{\circ} 51^{\prime} 41.31{ }^{\prime \prime} \mathrm{N}$ | -46.43916067 | 16.8614763 |  |
|  | $46^{\circ} 31^{\prime} 56.21{ }^{\prime \prime} \mathrm{W}$ | $16^{\circ} 46^{\prime} 13.55^{\prime \prime} \mathrm{N}$ | -46.53228062 | 16.77043172 |  |
|  | $46^{\circ} 311^{\prime} 58.82{ }^{\prime \prime} \mathrm{W}$ | $16^{\circ} 51^{\prime} 38.87{ }^{\prime \prime} \mathrm{N}$ | -46.53300683 | 16.86079631 |  |
| 44 | $46^{\circ} 31^{\prime} 53.61{ }^{\prime \prime} \mathrm{W}$ | $16^{\circ} 40^{\prime} 48.24{ }^{\prime \prime} \mathrm{N}$ | -46.53155887 | 16.6800663 | 100 |
|  | $46^{\circ} 31^{\prime} 56.21{ }^{\prime \prime} \mathrm{W}$ | $16^{\circ} 46^{\prime} 13.55^{\prime \prime} \mathrm{N}$ | -46.53228062 | 16.77043172 |  |
|  | $46^{\circ} 37{ }^{\prime} 31.12{ }^{\prime \prime} \mathrm{W}$ | 160 $40^{\prime} 45.67{ }^{\prime \prime} \mathrm{N}$ | -46.62531201 | 16.6793516 |  |
|  | $46^{\circ} 37{ }^{\prime} 33.88^{\prime \prime} \mathrm{W}$ | $16^{\circ} 46^{\prime} 10.97{ }^{\prime \prime} \mathrm{N}$ | -46.62607789 | 16.76971292 |  |
| 45 | $46^{\circ} 26^{\prime} 16.08^{\prime \prime} \mathrm{W}$ | $16^{\circ} 40^{\prime} 50.66^{\prime \prime} \mathrm{N}$ | -46.43780127 | 16.68073859 | 100 |
|  | $46^{\circ} 26^{\prime} 18.52^{\prime \prime} \mathrm{W}$ | $16^{\circ} 46^{\prime} 15.99^{\prime \prime} \mathrm{N}$ | -46.43847887 | 16.77110785 |  |
|  | $46^{\circ} 31^{\prime} 53.61{ }^{\prime \prime} \mathrm{W}$ | $16^{\circ} 40^{\prime} 48.24{ }^{\prime \prime} \mathrm{N}$ | -46.53155887 | 16.6800663 |  |
|  | $46^{\circ} 31{ }^{\prime} 56.21^{\prime \prime} \mathrm{W}$ | $16^{\circ} 46^{\prime} 13.55^{\prime \prime} \mathrm{N}$ | -46.53228062 | 16.77043172 |  |
| 46 | $46^{\circ} 26^{\prime} 13.66^{\prime \prime} \mathrm{W}$ | $16^{\circ} 35^{\prime} 25.33{ }^{\prime \prime} \mathrm{N}$ | -46.43712787 | 16.59036851 | 100 |
|  | $46^{\circ} 26^{\prime} 16.08^{\prime \prime} \mathrm{W}$ | $16^{\circ} 40^{\prime} 50.66^{\prime \prime} \mathrm{N}$ | -46.43780127 | 16.68073859 |  |
|  | $46^{\circ} 31^{\prime} 51.03{ }^{\prime \prime} \mathrm{W}$ | $16^{\circ} 35^{\prime} 22.92^{\prime \prime} \mathrm{N}$ | -46.5308416 | 16.58970007 |  |
|  | $46^{\circ} 31^{\prime} 53.61^{\prime \prime} \mathrm{W}$ | $16^{\circ} 40^{\prime} 48.24{ }^{\prime \prime} \mathrm{N}$ | -46.53155887 | 16.6800663 |  |
| 47 | $46^{\circ} 31^{\prime} 48.46^{\prime \prime} \mathrm{W}$ | $16^{\circ} 29^{\prime} 57.60{ }^{\prime \prime} \mathrm{N}$ | -46.53012877 | 16.49933302 | 100 |
|  | $46^{\circ} 31{ }^{\prime} 51.03$ " W | $16^{\circ} 35^{\prime} 22.92{ }^{\prime \prime} \mathrm{N}$ | -46.5308416 | 16.58970007 |  |


| Block number | Longitude | Latitude | Longitude (decimal degrees) | Latitude (decimal degrees) | Area $\mathrm{km}^{2}$ |
| :---: | :---: | :---: | :---: | :---: | :---: |
|  | 46³ 37' 25.66" W | $16^{\circ} 29^{\prime} 55.06^{\prime \prime} \mathrm{N}$ | -46.62379446 | 16.4986265 |  |
|  | $46^{\circ} 37{ }^{\prime} 28.38^{\prime \prime} \mathrm{W}$ | $16^{\circ} 35^{\prime} 20.36^{\prime \prime} \mathrm{N}$ | -46.62455087 | 16.58898946 |  |
| 48 | $46^{\circ} 37{ }^{\prime} 17.59^{\prime \prime} \mathrm{W}$ | 16* $13{ }^{\prime} 39.12^{\prime \prime} \mathrm{N}$ | -46.62155346 | 16.22753275 | 100 |
|  | $46^{\circ} 37 \prime 20.26^{\prime \prime} \mathrm{W}$ | $16^{\circ} 19^{\prime} 4.43 " \mathrm{~N}$ | -46.62229576 | 16.31789814 |  |
|  | $46^{\circ} 42^{\prime} 54.31^{\prime \prime} \mathrm{W}$ | $16^{\circ} 13{ }^{\prime} 36.47{ }^{\prime \prime} \mathrm{N}$ | -46.71508532 | 16.22679727 |  |
|  | $46^{\circ} 42^{\prime} 57.13{ }^{\prime \prime} \mathrm{W}$ | $16^{\circ} 19^{\prime} 1.77{ }^{\prime \prime} \mathrm{N}$ | -46.71587039 | 16.31715834 |  |
| 49 | $46^{\circ} 37{ }^{\prime} 14.94{ }^{\prime \prime} \mathrm{W}$ | $16^{\circ} 8^{\prime} 13.80^{\prime \prime} \mathrm{N}$ | -46.62081585 | 16.13716657 | 100 |
|  | $46^{\circ} 37{ }^{\prime} 17.59^{\prime \prime} \mathrm{W}$ | 16* $13 ' 39.12^{\prime \prime} \mathrm{N}$ | -46.62155346 | 16.22753275 |  |
|  | $46^{\circ} 42^{\prime} 51.50{ }^{\prime \prime} \mathrm{W}$ | $16^{\circ} 8^{\prime} 11.17{ }^{\prime \prime} \mathrm{N}$ | -46.71430521 | 16.13643539 |  |
|  | $46^{\circ} 42^{\prime} 54.31^{\prime \prime} \mathrm{W}$ | $16^{\circ} 13 ' 36.47{ }^{\prime \prime} \mathrm{N}$ | -46.71508532 | 16.22679727 |  |
| 50 | $46^{\circ} 37{ }^{\prime} 12.30^{\prime \prime} \mathrm{W}$ | $16^{\circ} 2^{\prime} 48.48^{\prime \prime} \mathrm{N}$ | -46.62008291 | 16.04679958 | 100 |
|  | $46^{\circ} 37{ }^{\prime} 14.94{ }^{\prime \prime} \mathrm{W}$ | $16^{\circ} 8^{\prime} 13.80^{\prime \prime} \mathrm{N}$ | -46.62081585 | 16.13716657 |  |
|  | $46^{\circ} 42^{\prime} 48.71^{\prime \prime} \mathrm{W}$ | $16^{\circ} 2^{\prime} 45.86^{\prime \prime} \mathrm{N}$ | -46.71353005 | 16.04607272 |  |
|  | $46^{\circ} 42^{\prime} 51.50{ }^{\prime \prime} \mathrm{W}$ | $16^{\circ} 8^{\prime} 11.17{ }^{\prime \prime} \mathrm{N}$ | -46.71430521 | 16.13643539 |  |
| 51 | $46^{\circ} 37{ }^{\prime} 12.30^{\prime \prime} \mathrm{W}$ | $16^{\circ} 2^{\prime} 48.48^{\prime \prime} \mathrm{N}$ | -46.62008291 | 16.04679958 | 100 |
|  | $46^{\circ} 37{ }^{\prime} 9.68^{\prime \prime} \mathrm{W}$ | $15^{\circ} 57{ }^{\prime} 23.15^{\prime \prime} \mathrm{N}$ | -46.61935464 | 15.9564318 |  |
|  | 460 42' 45.94" W | $15^{\circ} 57^{\prime} 20.55^{\prime \prime} \mathrm{N}$ | -46.71275981 | 15.95570924 |  |
|  | $46^{\circ} 42^{\prime} 48.71^{\prime \prime} \mathrm{W}$ | $16^{\circ} 2^{\prime} 45.86^{\prime \prime} \mathrm{N}$ | -46.71353005 | 16.04607272 |  |
| 52 | $46^{\circ} 31{ }^{\prime} 33.40{ }^{\prime \prime} \mathrm{W}$ | $15^{\circ} 57^{\prime} 25.61{ }^{\prime \prime} \mathrm{N}$ | -46.5259448 | 15.95711389 | 100 |
|  | $46^{\circ} 31{ }^{\prime} 35.87{ }^{\prime \prime} \mathrm{W}$ | $16^{\circ} 2^{\prime} 50.95^{\prime \prime} \mathrm{N}$ | -46.52663111 | 16.04748573 |  |
|  | $46^{\circ} 37 \prime 12.30^{\prime \prime} \mathrm{W}$ | $16^{\circ} 2^{\prime} 48.48{ }^{\prime \prime} \mathrm{N}$ | -46.62008291 | 16.04679958 |  |
|  | $46^{\circ} 37{ }^{\prime} 9.68^{\prime \prime} \mathrm{W}$ | $15^{\circ} 57^{\prime} 23.15^{\prime \prime} \mathrm{N}$ | -46.61935464 | 15.9564318 |  |
| 53 | $46^{\circ} 37^{\prime} 7.07{ }^{\prime \prime} \mathrm{W}$ | $15^{\circ} 51{ }^{\prime} 57.83{ }^{\prime \prime} \mathrm{N}$ | -46.61863102 | 15.86606323 | 100 |
|  | $46^{\circ} 37{ }^{\prime} 9.68^{\prime \prime} \mathrm{W}$ | $15^{\circ} 57^{\prime} 23.15^{\prime \prime} \mathrm{N}$ | -46.61935464 | 15.9564318 |  |
|  | $46^{\circ} 42^{\prime} 43.18^{\prime \prime} \mathrm{W}$ | $15^{\circ} 51{ }^{\prime} 55.24{ }^{\prime \prime} \mathrm{N}$ | -46.7119945 | 15.86534498 |  |
|  | 460 42' 45.94" W | $15^{\circ} 57^{\prime} 20.55^{\prime \prime} \mathrm{N}$ | -46.71275981 | 15.95570924 |  |
| 54 | $46^{\circ} 31^{\prime} 30.95^{\prime \prime} \mathrm{W}$ | $15^{\circ} 52{ }^{\prime} 0.27{ }^{\prime \prime} \mathrm{N}$ | -46.52526288 | 15.86674126 | 100 |
|  | $46^{\circ} 31{ }^{\prime} 33.40^{\prime \prime} \mathrm{W}$ | $15^{\circ} 57^{\prime} 25.61{ }^{\prime \prime} \mathrm{N}$ | -46.5259448 | 15.95711389 |  |
|  | $46^{\circ} 37^{\prime} 7.07{ }^{\prime \prime} \mathrm{W}$ | $15^{\circ} 51^{\prime} 57.83 " \mathrm{~N}$ | -46.61863102 | 15.86606323 |  |
|  | $46^{\circ} 37{ }^{\prime} 9.68^{\prime \prime} \mathrm{W}$ | 15* 57' $23.15^{\prime \prime} \mathrm{N}$ | -46.61935464 | 15.9564318 |  |
| 55 | $46^{\circ} 37{ }^{\prime} 4.48^{\prime \prime} \mathrm{W}$ | $15^{\circ} 46^{\prime} 32.50{ }^{\prime \prime} \mathrm{N}$ | -46.61791204 | 15.77569388 | 100 |
|  | $46^{\circ} 37{ }^{\prime} 7.07{ }^{\prime \prime} \mathrm{W}$ | $15^{\circ} 51^{\prime} 57.83{ }^{\prime \prime} \mathrm{N}$ | -46.61863102 | 15.86606323 |  |
|  | $46^{\circ} 42^{\prime} 40.44^{\prime \prime} \mathrm{W}$ | $15^{\circ} 46^{\prime} 29.93{ }^{\prime \prime} \mathrm{N}$ | -46.71123411 | 15.77497992 |  |
|  | $46^{\circ} 42^{\prime} 43.18^{\prime \prime} \mathrm{W}$ | $15^{\circ} 51^{\prime} 55.24{ }^{\prime \prime} \mathrm{N}$ | -46.7119945 | 15.86534498 |  |
| 56 | $46^{\circ} 31{ }^{\prime} 28.51^{\prime \prime} \mathrm{W}$ | $15^{\circ} 46^{\prime} 34.92{ }^{\prime \prime} \mathrm{N}$ | -46.52458534 | 15.77636785 | 100 |
|  | $46^{\circ} 31{ }^{\prime} 30.95^{\prime \prime} \mathrm{W}$ | $15^{\circ} 52^{\prime} 0.27^{\prime \prime} \mathrm{N}$ | -46.52526288 | 15.86674126 |  |
|  | $46^{\circ} 37{ }^{\prime} 4.48^{\prime \prime} \mathrm{W}$ | $15^{\circ} 46^{\prime} 32.50{ }^{\prime \prime} \mathrm{N}$ | -46.61791204 | 15.77569388 |  |
|  | $46^{\circ} 37{ }^{\prime} 7.07{ }^{\prime \prime} \mathrm{W}$ | $15^{\circ} 51 ' 57.83{ }^{\prime \prime} \mathrm{N}$ | -46.61863102 | 15.86606323 |  |


| Block number | Longitude | Latitude | Longitude (decimal degrees) | Latitude (decimal degrees) | Area $\mathrm{km}^{2}$ |
| :---: | :---: | :---: | :---: | :---: | :---: |
| 57 | $44^{\circ} 50{ }^{\prime} 4.50{ }^{\prime \prime} \mathrm{W}$ | $14^{\circ} 58^{\prime} 37.23{ }^{\prime \prime} \mathrm{N}$ | -44.83458295 | 14.97700737 | 100 |
|  | $44^{\circ} 50 \cdot 4.75^{\prime \prime} \mathrm{W}$ | 14* $53 ' 11.74{ }^{\prime \prime} \mathrm{N}$ | -44.83465211 | 14.88659493 |  |
|  | $44^{\circ} 55^{\prime} 39.32{ }^{\prime \prime} \mathrm{W}$ | $14^{\circ} 58^{\prime} 37.40^{\prime \prime} \mathrm{N}$ | -44.92758961 | 14.97705587 |  |
|  | 44* 55' 39.43" W | $14^{\circ} 53^{\prime} 11.92{ }^{\prime \prime} \mathrm{N}$ | -44.92761989 | 14.88664311 |  |
| 58 | $44^{\circ} 55^{\prime} 39.43 " \mathrm{~W}$ | 14* $53 ' 11.92{ }^{\prime \prime} \mathrm{N}$ | -44.92761989 | 14.88664311 | 100 |
|  | $44^{\circ} 55^{\prime} 39.54{ }^{\prime \prime} \mathrm{W}$ | 14* $47{ }^{\prime} 46.43{ }^{\prime \prime} \mathrm{N}$ | -44.92764996 | 14.79622965 |  |
|  | $45^{\circ} 1^{\prime} 14.09^{\prime \prime} \mathrm{W}$ | $14^{\circ} 47{ }^{\prime} 46.46^{\prime \prime} \mathrm{N}$ | -45.02057932 | 14.79624008 |  |
|  | $45^{\circ} 1^{\prime} 14.12^{\prime \prime} \mathrm{W}$ | $14^{\circ} 53^{\prime} 11.95^{\prime \prime} \mathrm{N}$ | -45.02058787 | 14.88665361 |  |
| 59 | $44^{\circ} 50 \cdot 4.75^{\prime \prime} \mathrm{W}$ | 14* $53 ' 11.74{ }^{\prime \prime} \mathrm{N}$ | -44.83465211 | 14.88659493 | 100 |
|  | $44^{\circ} 50{ }^{\prime} 4.99^{\prime \prime} \mathrm{W}$ | $14^{\circ} 47^{\prime} 46.25^{\prime \prime} \mathrm{N}$ | -44.8347208 | 14.79618177 |  |
|  | $44^{\circ} 55^{\prime} 39.43{ }^{\prime \prime} \mathrm{W}$ | 14* $53 ' 11.92{ }^{\prime \prime} \mathrm{N}$ | -44.92761989 | 14.88664311 |  |
|  | 440 55' 39.54" W | $14^{\circ} 47^{\prime} 46.43{ }^{\prime \prime} \mathrm{N}$ | -44.92764996 | 14.79622965 |  |
| 60 | $45^{\circ} 1^{\prime} 14.05^{\prime \prime} \mathrm{W}$ | $14^{\circ} 42^{\prime} 20.97{ }^{\prime \prime} \mathrm{N}$ | -45.02057082 | 14.70582584 | 100 |
|  | $45^{\circ} 1^{\prime} 14.09^{\prime \prime} \mathrm{W}$ | $14^{\circ} 47^{\prime} 46.46^{\prime \prime} \mathrm{N}$ | -45.02057932 | 14.79624008 |  |
|  | $45^{\circ} 6^{\prime} 48.46^{\prime \prime} \mathrm{W}$ | 14* $42{ }^{\prime} 20.88{ }^{\prime \prime} \mathrm{N}$ | -45.11346176 | 14.705799 |  |
|  | $45^{\circ} 6^{\prime} 48.63^{\prime \prime} \mathrm{W}$ | $14^{\circ} 47{ }^{\prime} 46.37{ }^{\prime \prime} \mathrm{N}$ | -45.11350862 | 14.79621306 |  |
| 61 | $44^{\circ} 55^{\prime} 39.54{ }^{\prime \prime} \mathrm{W}$ | $14^{\circ} 47^{\prime} 46.43{ }^{\prime \prime} \mathrm{N}$ | -44.92764996 | 14.79622965 | 100 |
|  | $44^{\circ} 55^{\prime} 39.65^{\prime \prime} \mathrm{W}$ | 14 ${ }^{\circ} 42^{\prime} 20.94{ }^{\prime \prime} \mathrm{N}$ | -44.92767983 | 14.70581548 |  |
|  | $45^{\circ} 1^{\prime} 14.05^{\prime \prime} \mathrm{W}$ | $14^{\circ} 42^{\prime} 20.97{ }^{\prime \prime} \mathrm{N}$ | -45.02057082 | 14.70582584 |  |
|  | $45^{\circ} 1^{\prime} 14.09^{\prime \prime} \mathrm{W}$ | $14^{\circ} 47{ }^{\prime} 46.46{ }^{\prime \prime} \mathrm{N}$ | -45.02057932 | 14.79624008 |  |
| 62 | $44^{\circ} 50{ }^{\prime} 4.99^{\prime \prime} \mathrm{W}$ | $14^{\circ} 47^{\prime} 46.25^{\prime \prime} \mathrm{N}$ | -44.8347208 | 14.79618177 | 100 |
|  | $44^{\circ} 50{ }^{\prime} 5.24{ }^{\prime \prime} \mathrm{W}$ | 14* $42^{\prime} 20.76{ }^{\prime \prime} \mathrm{N}$ | -44.83478903 | 14.7057679 |  |
|  | $44^{\circ} 55^{\prime} 39.54{ }^{\prime \prime} \mathrm{W}$ | 14* $47{ }^{\prime} 46.43{ }^{\prime \prime} \mathrm{N}$ | -44.92764996 | 14.79622965 |  |
|  | $44^{\circ} 55^{\prime} 39.65^{\prime \prime} \mathrm{W}$ | $14^{\circ} 42^{\prime} 20.94{ }^{\prime \prime} \mathrm{N}$ | -44.92767983 | 14.70581548 |  |
| 63 | $44^{\circ} 55^{\prime} 39.65^{\prime \prime} \mathrm{W}$ | $14^{\circ} 42^{\prime} 20.94{ }^{\prime \prime} \mathrm{N}$ | -44.92767983 | 14.70581548 | 100 |
|  | 44* 55' 39.75" W | $14^{\circ} 36{ }^{\prime} 55.44{ }^{\prime \prime} \mathrm{N}$ | -44.92770949 | 14.6154006 |  |
|  | $45^{\circ} 1^{\prime} 14.02^{\prime \prime} \mathrm{W}$ | $14^{\circ} 36^{\prime} 55.48{ }^{\prime \prime} \mathrm{N}$ | -45.02056238 | 14.6154109 |  |
|  | $45^{\circ} 1^{\prime} 14.05^{\prime \prime} \mathrm{W}$ | $14^{\circ} 42^{\prime} 20.97{ }^{\prime \prime} \mathrm{N}$ | -45.02057082 | 14.70582584 |  |
| 64 | $44^{\circ} 50{ }^{\prime} 5.24{ }^{\prime \prime} \mathrm{W}$ | $14^{\circ} 42^{\prime} 20.76^{\prime \prime} \mathrm{N}$ | -44.83478903 | 14.7057679 | 100 |
|  | $44^{\circ} 50 ' 5.48^{\prime \prime} \mathrm{W}$ | $14^{\circ} 36^{\prime} 55.27{ }^{\prime \prime} \mathrm{N}$ | -44.83485679 | 14.61535333 |  |
|  | $44^{\circ} 55^{\prime} 39.65^{\prime \prime} \mathrm{W}$ | 14* $42{ }^{\prime}$ 20.94" N | -44.92767983 | 14.70581548 |  |
|  | $44^{\circ} 55^{\prime} 39.75^{\prime \prime} \mathrm{W}$ | $14^{\circ} 36^{\prime} 55.44{ }^{\prime \prime} \mathrm{N}$ | -44.92770949 | 14.6154006 |  |
| 65 | $44^{\circ} 55^{\prime} 40.58^{\prime \prime} \mathrm{W}$ | $13^{\circ} 53^{\prime} 31.40{ }^{\prime \prime} \mathrm{N}$ | -44.92793951 | 13.89205672 | 100 |
|  | $44^{\circ} 55^{\prime} 40.68^{\prime \prime} \mathrm{W}$ | $13^{\circ} 48^{\prime} 5.89^{\prime \prime} \mathrm{N}$ | -44.92796736 | 13.80163569 |  |
|  | $45^{\circ} 1^{\prime} 13.76{ }^{\prime \prime} \mathrm{W}$ | $13^{\circ} 48^{\prime} 5.92^{\prime \prime} \mathrm{N}$ | -45.02048903 | 13.80164539 |  |
|  | $45^{\circ} 1^{\prime} 13.79^{\prime \prime} \mathrm{W}$ | $13^{\circ} 53^{\prime} 31.44{ }^{\prime \prime} \mathrm{N}$ | -45.02049696 | 13.89206649 |  |
| 66 | $44^{\circ} 50^{\prime} 7.38^{\prime \prime} \mathrm{W}$ | $13^{\circ} 53^{\prime} 31.24{ }^{\prime \prime} \mathrm{N}$ | -44.83538227 | 13.89201188 | 100 |
|  | $44^{\circ} 50{ }^{\prime} 7.61{ }^{\prime \prime} \mathrm{W}$ | $13^{\circ} 48^{\prime} 5.73{ }^{\prime \prime} \mathrm{N}$ | -44.83544589 | 13.80159115 |  |



| Block number | Longitude | Latitude | Longitude (decimal degrees) | Latitude (decimal degrees) | Area $\mathrm{km}^{2}$ |
| :---: | :---: | :---: | :---: | :---: | :---: |
| 76 | 44* 55' 40.98" W | 13* $31{ }^{\prime} 49.33{ }^{\prime \prime} \mathrm{N}$ | -44.92804971 | 13.53036862 | 100 |
|  | $44^{\circ} 55^{\prime} 41.08^{\prime \prime} \mathrm{W}$ | 13 ${ }^{\circ} 26^{\prime} 23.80^{\prime \prime} \mathrm{N}$ | -44.92807676 | 13.43994495 |  |
|  | $45^{\circ} 1^{\prime} 13.65^{\prime \prime} \mathrm{W}$ | 13 ${ }^{\circ} 26^{\prime} 23.84{ }^{\prime \prime} \mathrm{N}$ | -45.02045792 | 13.43995439 |  |
|  | $45^{\circ} 1^{\prime} 13.68^{\prime \prime} \mathrm{W}$ | $13^{\circ} 31^{\prime} 49.36^{\prime \prime} \mathrm{N}$ | -45.02046561 | 13.53037812 |  |
| 77 | $44^{\circ} 50{ }^{\prime} 8.28^{\prime \prime} \mathrm{W}$ | 13 ${ }^{\circ} 31^{\prime} 49.17{ }^{\prime \prime} \mathrm{N}$ | -44.83563401 | 13.53032499 | 100 |
|  | $44^{\circ} 50{ }^{\prime} 8.50{ }^{\prime \prime} \mathrm{W}$ | $13^{\circ} 26^{\prime} 23.65^{\prime \prime} \mathrm{N}$ | -44.83569581 | 13.43990163 |  |
|  | $44^{\circ} 55^{\prime} 40.98^{\prime \prime} \mathrm{W}$ | $13^{\circ} 31^{\prime} 49.33{ }^{\prime \prime} \mathrm{N}$ | -44.92804971 | 13.53036862 |  |
|  | $44^{\circ} 55^{\prime} 41.08^{\prime \prime} \mathrm{W}$ | 13 ${ }^{\circ} 26^{\prime} 23.80{ }^{\prime \prime} \mathrm{N}$ | -44.92807676 | 13.43994495 |  |
| 78 | $45^{\circ} 1^{\prime} 13.62^{\prime \prime} \mathrm{W}$ | $13^{\circ} 20^{\prime} 58.31{ }^{\prime \prime} \mathrm{N}$ | -45.02045028 | 13.34953001 | 100 |
|  | $45^{\circ} 1^{\prime} 13.65^{\prime \prime} \mathrm{W}$ | $13^{\circ} 26^{\prime} 23.84{ }^{\prime \prime} \mathrm{N}$ | -45.02045792 | 13.43995439 |  |
|  | $45^{\circ} 6^{\prime} 46.07{ }^{\prime \prime} \mathrm{W}$ | $13^{\circ} 20^{\prime} 58.22^{\prime \prime} \mathrm{N}$ | -45.11279688 | 13.34950573 |  |
|  | $45^{\circ} 6^{\prime} 46.22^{\prime \prime} \mathrm{W}$ | $13^{\circ} 26^{\prime} 23.75^{\prime \prime} \mathrm{N}$ | -45.11283901 | 13.43992994 |  |
| 79 | $44^{\circ} 55^{\prime} 41.08^{\prime \prime} \mathrm{W}$ | $13^{\circ} 26^{\prime} 23.80^{\prime \prime} \mathrm{N}$ | -44.92807676 | 13.43994495 | 100 |
|  | $44^{\circ} 55^{\prime} 41.17{ }^{\prime \prime} \mathrm{W}$ | $13^{\circ} 20^{\prime} 58.27{ }^{\prime \prime} \mathrm{N}$ | -44.92810362 | 13.34952064 |  |
|  | $45^{\circ} 1^{\prime} 13.62^{\prime \prime} \mathrm{W}$ | $13^{\circ} 20^{\prime} 58.31{ }^{\prime \prime} \mathrm{N}$ | -45.02045028 | 13.34953001 |  |
|  | $45^{\circ} 1^{\prime} 13.65^{\prime \prime} \mathrm{W}$ | 13 ${ }^{\circ} 26^{\prime} 23.84^{\prime \prime} \mathrm{N}$ | -45.02045792 | 13.43995439 |  |
| 80 | $44^{\circ} 50 \cdot 8.50{ }^{\prime \prime} \mathrm{W}$ | $13^{\circ} 26^{\prime} 23.65^{\prime \prime} \mathrm{N}$ | -44.83569581 | 13.43990163 | 100 |
|  | $44^{\circ} 50{ }^{\prime} 8.73{ }^{\prime \prime} \mathrm{W}$ | $13^{\circ} 20^{\prime} 58.12{ }^{\prime \prime} \mathrm{N}$ | -44.83575716 | 13.34947761 |  |
|  | $44^{\circ} 55^{\prime} 41.08^{\prime \prime} \mathrm{W}$ | 13 ${ }^{\circ} 26^{\prime} 23.80{ }^{\prime \prime} \mathrm{N}$ | -44.92807676 | 13.43994495 |  |
|  | $44^{\circ} 55^{\prime} 41.17{ }^{\prime \prime} \mathrm{W}$ | $13^{\circ} 20^{\prime} 58.27{ }^{\prime \prime} \mathrm{N}$ | -44.92810362 | 13.34952064 |  |
| 81 | $45^{\circ} 1^{\prime} 13.59^{\prime \prime} \mathrm{W}$ | $13^{\circ} 15^{\prime} 32.78^{\prime \prime} \mathrm{N}$ | -45.0204427 | 13.25910499 | 100 |
|  | $45^{\circ} 1^{\prime} 13.62^{\prime \prime} \mathrm{W}$ | $13^{\circ} 20^{\prime} 58.31{ }^{\prime \prime} \mathrm{N}$ | -45.02045028 | 13.34953001 |  |
|  | $45^{\circ} 6^{\prime} 45.92^{\prime \prime} \mathrm{W}$ | $13^{\circ} 15^{\prime} 32.69^{\prime \prime} \mathrm{N}$ | -45.11275506 | 13.25908088 |  |
|  | $45^{\circ} 6^{\prime} 46.07{ }^{\prime \prime} \mathrm{W}$ | $13^{\circ} 20^{\prime} 58.22^{\prime \prime} \mathrm{N}$ | -45.11279688 | 13.34950573 |  |
| 82 | 44* 55' 41.17" W | $13^{\circ} 20^{\prime} 58.27{ }^{\prime \prime} \mathrm{N}$ | -44.92810362 | 13.34952064 | 100 |
|  | $44^{\circ} 55^{\prime} 41.27{ }^{\prime \prime} \mathrm{W}$ | $13^{\circ} 15^{\prime} 32.74{ }^{\prime \prime} \mathrm{N}$ | -44.92813028 | 13.25909568 |  |
|  | $45^{\circ} 1^{\prime} 13.59^{\prime \prime} \mathrm{W}$ | 13 ${ }^{\circ} 15^{\prime} 32.78{ }^{\prime \prime} \mathrm{N}$ | -45.0204427 | 13.25910499 |  |
|  | $45^{\circ} 1^{\prime} 13.62^{\prime \prime} \mathrm{W}$ | $13^{\circ} 20^{\prime} 58.31{ }^{\prime \prime} \mathrm{N}$ | -45.02045028 | 13.34953001 |  |
| 83 | $44^{\circ} 50{ }^{\prime} 8.73^{\prime \prime} \mathrm{W}$ | $13^{\circ} 20^{\prime} 58.12{ }^{\prime \prime} \mathrm{N}$ | -44.83575716 | 13.34947761 | 100 |
|  | $44^{\circ} 50 ' 8.94{ }^{\prime \prime} \mathrm{W}$ | 13* $15^{\prime} 32.59{ }^{\prime \prime} \mathrm{N}$ | -44.83581805 | 13.25905296 |  |
|  | 44* 55' 41.17" W | $13^{\circ} 20^{\prime} 58.27{ }^{\prime \prime} \mathrm{N}$ | -44.92810362 | 13.34952064 |  |
|  | $44^{\circ} 55^{\prime} 41.27{ }^{\prime \prime} \mathrm{W}$ | 13* $15^{\prime} 32.74{ }^{\prime \prime} \mathrm{N}$ | -44.92813028 | 13.25909568 |  |
| 84 | $45^{\circ} 1^{\prime} 13.57{ }^{\prime \prime} \mathrm{W}$ | $13^{\circ} 10^{\prime} 7.25^{\prime \prime} \mathrm{N}$ | -45.02043517 | 13.16867932 | 100 |
|  | $45^{\circ} 1^{\prime} 13.59^{\prime \prime} \mathrm{W}$ | $13^{\circ} 15^{\prime} 32.78^{\prime \prime} \mathrm{N}$ | -45.0204427 | 13.25910499 |  |
|  | $45^{\circ} 6^{\prime} 45.77{ }^{\prime \prime} \mathrm{W}$ | $13^{\circ} 10^{\prime} 7.16^{\prime \prime} \mathrm{N}$ | -45.11271355 | 13.16865539 |  |
|  | $45^{\circ} 6^{\prime} 45.92^{\prime \prime} \mathrm{W}$ | $13^{\circ} 15^{\prime} 32.69^{\prime \prime} \mathrm{N}$ | -45.11275506 | 13.25908088 |  |
| 85 | $44^{\circ} 55^{\prime} 41.27{ }^{\prime \prime} \mathrm{W}$ | 13* $15^{\prime} 32.74{ }^{\prime \prime} \mathrm{N}$ | -44.92813028 | 13.25909568 | 100 |
|  | $44^{\circ} 55^{\prime} 41.36{ }^{\prime \prime} \mathrm{W}$ | $13^{\circ} 10^{\prime} 7.21^{\prime \prime} \mathrm{N}$ | -44.92815673 | 13.16867008 |  |


| Block number | Longitude | Latitude | Longitude (decimal degrees) | Latitude (decimal degrees) | Area $\mathrm{km}^{2}$ |
| :---: | :---: | :---: | :---: | :---: | :---: |
|  | $45^{\circ} 1^{\prime} 13.57{ }^{\prime \prime} \mathrm{W}$ | $13^{\circ} 10^{\prime} 7.25^{\prime \prime} \mathrm{N}$ | -45.02043517 | 13.16867932 |  |
|  | $45^{\circ} 1^{\prime} 13.59^{\prime \prime} \mathrm{W}$ | $13^{\circ} 15^{\prime} 32.78^{\prime \prime} \mathrm{N}$ | -45.0204427 | 13.25910499 |  |
| 86 | $44^{\circ} 50{ }^{\prime} 8.94{ }^{\prime \prime} \mathrm{W}$ | $13^{\circ} 15^{\prime} 32.59{ }^{\prime \prime} \mathrm{N}$ | -44.83581805 | 13.25905296 | 100 |
|  | $44^{\circ} 50{ }^{\prime} 9.16^{\prime \prime} \mathrm{W}$ | $13^{\circ} 10^{\prime} 7.06^{\prime \prime} \mathrm{N}$ | -44.8358785 | 13.16862766 |  |
|  | 44* 55' 41.27" W | 13 ${ }^{\circ} 15^{\prime} 32.74{ }^{\prime \prime} \mathrm{N}$ | -44.92813028 | 13.25909568 |  |
|  | 44* 55' $41.36{ }^{\prime \prime} \mathrm{W}$ | $13^{\circ} 10^{\prime} 7.21^{\prime \prime} \mathrm{N}$ | -44.92815673 | 13.16867008 |  |
| 87 | 44 $44^{\circ} 36.62^{\prime \prime} \mathrm{W}$ | $13^{\circ} 15^{\prime} 32.32{ }^{\prime \prime} \mathrm{N}$ | -44.74350628 | 13.25897682 | 100 |
|  | $44^{\circ} 44^{\prime} 36.96{ }^{\prime \prime} \mathrm{W}$ | $13^{\circ} 10^{\prime} 6.79^{\prime \prime} \mathrm{N}$ | -44.74360071 | 13.16855206 |  |
|  | $44^{\circ} 50{ }^{\prime} 8.94{ }^{\prime \prime} \mathrm{W}$ | $13^{\circ} 15^{\prime} 32.59^{\prime \prime} \mathrm{N}$ | -44.83581805 | 13.25905296 |  |
|  | $44^{\circ} 50{ }^{\prime} 9.16^{\prime \prime} \mathrm{W}$ | $13^{\circ} 10^{\prime} 7.06^{\prime \prime} \mathrm{N}$ | -44.8358785 | 13.16862766 |  |
| 88 | $44^{\circ} 39^{\prime} 4.30{ }^{\prime \prime} \mathrm{W}$ | 13 ${ }^{\circ} 15^{\prime} 31.92{ }^{\prime \prime} \mathrm{N}$ | -44.65119522 | 13.25886727 | 100 |
|  | $44^{\circ} 39^{\prime} 4.77{ }^{\prime \prime} \mathrm{W}$ | $13^{\circ} 10^{\prime} 6.40^{\prime \prime} \mathrm{N}$ | -44.65132363 | 13.16844329 |  |
|  | $44^{\circ} 44^{\prime} 36.62^{\prime \prime} \mathrm{W}$ | 13* $15^{\prime} 32.32{ }^{\prime \prime} \mathrm{N}$ | -44.74350628 | 13.25897682 |  |
|  | 44 $44^{\prime} 36.96{ }^{\prime \prime} \mathrm{W}$ | $13^{\circ} 10^{\prime} 6.79^{\prime \prime} \mathrm{N}$ | -44.74360071 | 13.16855206 |  |
| 89 | $44^{\circ} 55^{\prime} 41.36{ }^{\prime \prime} \mathrm{W}$ | $13^{\circ} 10^{\prime} 7.21^{\prime \prime} \mathrm{N}$ | -44.92815673 | 13.16867008 | 100 |
|  | $44^{\circ} 55^{\prime} 41.46{ }^{\prime \prime} \mathrm{W}$ | $13^{\circ} 4^{\prime} 41.68{ }^{\prime \prime} \mathrm{N}$ | -44.928183 | 13.07824385 |  |
|  | $45^{\circ} 1^{\prime} 13.54{ }^{\prime \prime} \mathrm{W}$ | $13^{\circ} 4^{\prime} 41.71{ }^{\prime \prime} \mathrm{N}$ | -45.0204277 | 13.07825302 |  |
|  | $45^{\circ} 1^{\prime} 13.57{ }^{\prime \prime} \mathrm{W}$ | $13^{\circ} 10^{\prime} 7.25^{\prime \prime} \mathrm{N}$ | -45.02043517 | 13.16867932 |  |
| 90 | $44^{\circ} 50 \cdot 9.16^{\prime \prime} \mathrm{W}$ | $13^{\circ} 10^{\prime} 7.06^{\prime \prime} \mathrm{N}$ | -44.8358785 | 13.16862766 | 100 |
|  | $44^{\circ} 50{ }^{\prime} 9.38^{\prime \prime} \mathrm{W}$ | $13^{\circ} 4^{\prime} 41.53{ }^{\prime \prime} \mathrm{N}$ | -44.83593849 | 13.07820173 |  |
|  | $44^{\circ} 55^{\prime} 41.36{ }^{\prime \prime} \mathrm{W}$ | $13^{\circ} 10^{\prime} 7.21^{\prime \prime} \mathrm{N}$ | -44.92815673 | 13.16867008 |  |
|  | $44^{\circ} 55^{\prime} 41.46{ }^{\prime \prime} \mathrm{W}$ | $13^{\circ} 4^{\prime} 41.68^{\prime \prime} \mathrm{N}$ | -44.928183 | 13.07824385 |  |
| 91 | $44^{\circ} 44^{\prime} 36.96{ }^{\prime \prime} \mathrm{W}$ | $13^{\circ} 10^{\prime} 6.79^{\prime \prime} \mathrm{N}$ | -44.74360071 | 13.16855206 | 100 |
|  | $44^{\circ} 44^{\prime} 37.30^{\prime \prime} \mathrm{W}$ | $13^{\circ} 4^{\prime} 41.26^{\prime \prime} \mathrm{N}$ | -44.74369444 | 13.07812666 |  |
|  | $44^{\circ} 50 \cdot 9.16^{\prime \prime} \mathrm{W}$ | $13^{\circ} 10^{\prime} 7.06^{\prime \prime} \mathrm{N}$ | -44.8358785 | 13.16862766 |  |
|  | $44^{\circ} 50{ }^{\prime} 9.38^{\prime \prime} \mathrm{W}$ | $13^{\circ} 4^{\prime} 41.53 " \mathrm{~N}$ | -44.83593849 | 13.07820173 |  |
| 92 | $44^{\circ} 39^{\prime} 4.77{ }^{\prime \prime} \mathrm{W}$ | $13^{\circ} 10^{\prime} 6.40^{\prime \prime} \mathrm{N}$ | -44.65132363 | 13.16844329 | 100 |
|  | $44^{\circ} 39^{\prime} 5.22^{\prime \prime} \mathrm{W}$ | $13^{\circ} 4^{\prime} 40.87{ }^{\prime \prime} \mathrm{N}$ | -44.65145108 | 13.07801866 |  |
|  | 44 $44^{\prime} 36.96{ }^{\prime \prime} \mathrm{W}$ | $13^{\circ} 10^{\prime} 6.79^{\prime \prime} \mathrm{N}$ | -44.74360071 | 13.16855206 |  |
|  | $44^{\circ} 44^{\prime} 37.30{ }^{\prime \prime} \mathrm{W}$ | $13^{\circ} 4^{\prime} 41.26^{\prime \prime} \mathrm{N}$ | -44.74369444 | 13.07812666 |  |
| 93 | $44^{\circ} 55^{\prime} 41.46{ }^{\prime \prime} \mathrm{W}$ | $13^{\circ} 4^{\prime} 41.68^{\prime \prime} \mathrm{N}$ | -44.928183 | 13.07824385 | 100 |
|  | $44^{\circ} 55^{\prime} 41.55^{\prime \prime} \mathrm{W}$ | 12* 59' 16.14" N | -44.92820906 | 12.98781698 |  |
|  | $45^{\circ} 1^{\prime} 13.51{ }^{\prime \prime} \mathrm{W}$ | $12^{\circ} 59^{\prime} 16.17{ }^{\prime \prime} \mathrm{N}$ | -45.02042029 | 12.98782609 |  |
|  | $45^{\circ} 1^{\prime} 13.54{ }^{\prime \prime} \mathrm{W}$ | $13^{\circ} 4^{\prime} 41.71{ }^{\prime \prime} \mathrm{N}$ | -45.0204277 | 13.07825302 |  |
| 94 | $44^{\circ} 50 \cdot 9.38^{\prime \prime} \mathrm{W}$ | $13^{\circ} 4^{\prime} 41.53 " \mathrm{~N}$ | -44.83593849 | 13.07820173 | 100 |
|  | $44^{\circ} 50{ }^{\prime} 9.59^{\prime \prime} \mathrm{W}$ | 12* 59' $15.99^{\prime \prime} \mathrm{N}$ | -44.83599803 | 12.98777516 |  |
|  | $44^{\circ} 55^{\prime} 41.46{ }^{\prime \prime} \mathrm{W}$ | $13^{\circ} 4^{\prime} 41.68^{\prime \prime} \mathrm{N}$ | -44.928183 | 13.07824385 |  |
|  | $44^{\circ} 55^{\prime} 41.55^{\prime \prime} \mathrm{W}$ | $12^{\circ} 59^{\prime} 16.14{ }^{\prime \prime} \mathrm{N}$ | -44.92820906 | 12.98781698 |  |


| Block <br> number | Longitude | Latitude | Longitude (decimal <br> degrees) | Latitude (decimal <br> degrees) | Area km² |
| :--- | :--- | :--- | :--- | :--- | :--- |



