# A MAGNETIC SURVEY IN THE VICINITY OF PORT STANLEY, FALKLAND ISLANDS*

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A MAGNETIC survey of the Port Stanley peninsula, Falkland Islands, between long. 57°47′ and 57°56′W. (Fig. 1), was carried out by J. Ashley of the Falkland Islands Dependencies Survey during December 1958. The field instrument was an Askania Gfz torsion variometer, and diurnal variations were measured with an Askania Gf6 variometer coupled to a Hartmann-Braun recorder. Both instruments measured variation of the vertical component of the mag-

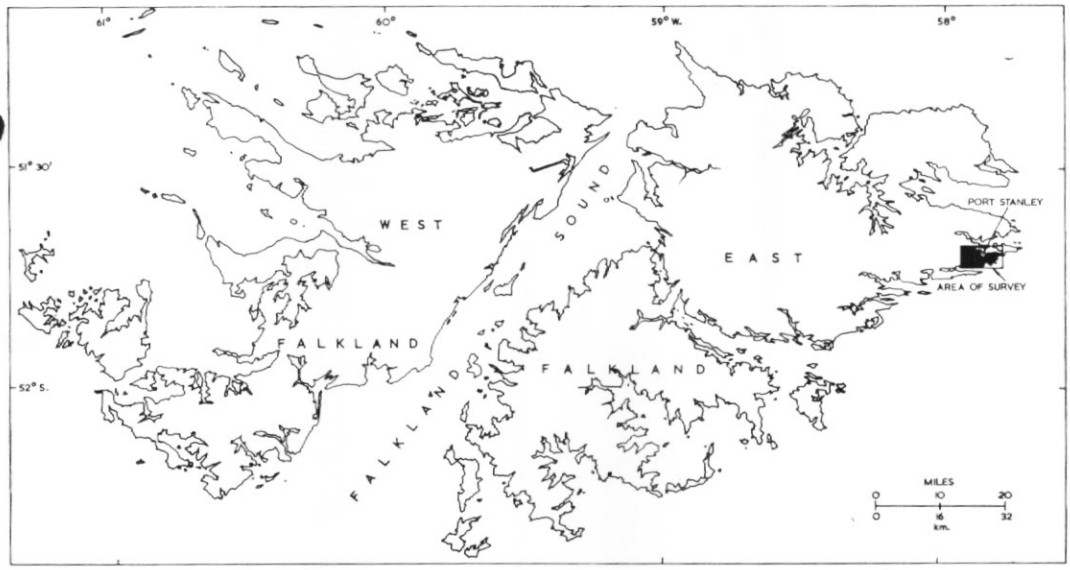


Fig. 1. Sketch map of the Falkland Islands showing the location of the area where the magnetic survey was carried out.

netic field. One hundred and sixty magnetic stations were observed, spaced at about 600 yd. (550 m.) intervals and distributed fairly uniformly over the area. They included two base stations set up for instrument drift measurements. Station positions, which were resected from compass bearings, have an estimated error of ±50 yd. (±45·7 m.). The vertical magnetic field values, relative to an arbitrary value of +100 gamma at base station 1, are given in Table I and

TABLE I. POSITIONS OF STATIONS AND THEIR VERTICAL MAGNETIC FIELD VALUES

| *Station Number* | *Latitude* (S.) | *Longitude* (W.) | *Magnetic Field Value* (gamma) | *Station Number* | *Latitude* (S.) | *Longitude* (W.) | *Magnetic Field Value* (gamma) |
|---|---|---|---|---|---|---|---|
| 1 (Base 1) | 51° 41′ 37″ | 57° 52′ 41″ | 100 | 5 | 51° 42′ 08″ | 57° 51′ 00″ | 122 |
| 2 | 42′ 15″ | 51′ 23″ | 113 | 6 | 42′ 08″ | 51′ 17″ | 108 |
| 3 | 41′ 57″ | 51′ 20″ | 110 | 7 | 41′ 59″ | 51′ 39″ | 100 |
| 4 | 41′ 58″ | 50′ 59″ | 120 | 8 | 42′ 01″ | 52′ 04″ | 110 |
| | | | | 9 | 41′ 53″ | 52′ 23″ | 113 |

* Summarized by the author from a preliminary report by Ashley (1961).

TABLE I (*continued*)

| *Station Number* | *Latitude* (S.) | *Longitude* (W.) | *Magnetic Field Value* (gamma) |
|---|---|---|---|
| 10 | 51° 41′ 43″ | 57° 52′ 45″ | 102 |
| 11 | 41′ 54″ | 53′ 08″ | 100 |
| 12 | 41′ 57″ | 52′ 48″ | 101 |
| 13 | 42′ 06″ | 52′ 31″ | 98 |
| 14 | 42′ 07″ | 52′ 13″ | 109 |
| 15 | 42′ 09″ | 51′ 51″ | 105 |
| 16 | 41′ 54″ | 50′ 37″ | 101 |
| 17 | 42′ 10″ | 50′ 40″ | 100 |
| 18 | 42′ 17″ | 51′ 03″ | 110 |
| 19 | 42′ 26″ | 50′ 48″ | 115 |
| 20 | 42′ 27″ | 51′ 07″ | 107 |
| 21 | 42′ 22″ | 51′ 23″ | 100 |
| 22 | 42′ 21″ | 51′ 49″ | 113 |
| 23 | 42′ 11″ | 52′ 54″ | 114 |
| 24 | 42′ 14″ | 53′ 07″ | 109 |
| 25 | 41′ 49″ | 53′ 18″ | 110 |
| 26 | 41′ 50″ | 53′ 45″ | 115 |
| 27 | 41′ 56″ | 54′ 12″ | 113 |
| 28 | 41′ 56″ | 54′ 48″ | 128 |
| 29 | 41′ 49″ | 55′ 21″ | 114 |
| 30 | 41′ 36″ | 55′ 06″ | 105 |
| 31 | 41′ 36″ | 54′ 27″ | 108 |
| 32 | 41′ 36″ | 53′ 20″ | 103 |
| 33 | 41′ 35″ | 55′ 36″ | 116 |
| 34 | 41′ 27″ | 56′ 00″ | 109 |
| 35 | 41′ 45″ | 56′ 08″ | 107 |
| 36 | 41′ 55″ | 55′ 48″ | 120 |
| 37 | 42′ 11″ | 56′ 09″ | 108 |
| 38 | 42′ 07″ | 55′ 38″ | 106 |
| 39 | 42′ 13″ | 55′ 01″ | 101 |
| 40 | 42′ 09″ | 54′ 07″ | 109 |
| 41 | 42′ 12″ | 53′ 44″ | 103 |
| 42 | 42′ 16″ | 55′ 33″ | 124 |
| 43 | 42′ 33″ | 55′ 25″ | 114 |
| 44 | 42′ 45″ | 55′ 34″ | 128 |
| 45 | 42′ 59″ | 55′ 37″ | 130 |
| 46 | 43′ 13″ | 55′ 32″ | 129 |
| 47 | 43′ 25″ | 55′ 36″ | 133 |
| 48 | 43′ 26″ | 55′ 04″ | 139 |
| 49 | 43′ 12″ | 55′ 11″ | 124 |
| 50 | 42′ 57″ | 55′ 19″ | 113 |
| 51 | 42′ 44″ | 55′ 18″ | 110 |
| 52 | 42′ 30″ | 55′ 13″ | 107 |
| 53 | 42′ 15″ | 55′ 12″ | 126 |
| 54 | 42′ 17″ | 54′ 50″ | 109 |
| 55 | 42′ 33″ | 54′ 54″ | 115 |
| 56 | 42′ 47″ | 54′ 58″ | 117 |
| 57 | 43′ 00″ | 55′ 05″ | 119 |
| 58 | 43′ 17″ | 54′ 59″ | 118 |
| 59 | 43′ 31″ | 54′ 37″ | 128 |
| 60 | 43′ 27″ | 54′ 03″ | 135 |
| 61 | 43′ 38″ | 53′ 47″ | 130 |
| 62 | 43′ 19″ | 53′ 35″ | 130 |
| 63 | 43′ 11″ | 54′ 06″ | 126 |
| 64 | 43′ 07″ | 54′ 37″ | 126 |
| 65 | 42′ 58″ | 54′ 00″ | 124 |
| 66 | 42′ 39″ | 53′ 42″ | 121 |
| 67 | 42′ 35″ | 54′ 17″ | 108 |
| 68 | 42′ 18″ | 54′ 07″ | 112 |
| 69 | 42′ 19″ | 53′ 39″ | 103 |
| 70 (Base 2) | 41′ 35″ | 52′ 41″ | 98 |
| 71 | 42′ 24″ | 53′ 27″ | 115 |
| 72 | 42′ 53″ | 53′ 25″ | 119 |
| 73 | 51° 43′ 01″ | 57° 53′ 32″ | 126 |
| 74 | 43′ 11″ | 53′ 22″ | 132 |
| 75 | 43′ 39″ | 53′ 22″ | 143 |
| 76 | 43′ 38″ | 52′ 58″ | 132 |
| 77 | 43′ 42″ | 52′ 20″ | 138 |
| 78 | 43′ 32″ | 51′ 53″ | 126 |
| 79 | 43′ 21″ | 52′ 01″ | 146 |
| 80 | 43′ 21″ | 52′ 30″ | 138 |
| 81 | 43′ 12″ | 53′ 02″ | 138 |
| 82 | 42′ 57″ | 53′ 05″ | 118 |
| 83 | 43′ 03″ | 52′ 38″ | 127 |
| 84 | 43′ 01″ | 52′ 12″ | 133 |
| 85 | 43′ 09″ | 51′ 39″ | 132 |
| 86 | 43′ 22″ | 51′ 39″ | 121 |
| 87 | 43′ 22″ | 51′ 00″ | 115 |
| 88 | 43′ 03″ | 51′ 00″ | 121 |
| 89 | 42′ 43″ | 50′ 58″ | 107 |
| 90 | 42′ 47″ | 51′ 38″ | 131 |
| 91 | 42′ 46″ | 52′ 08″ | 119 |
| 92 | 42′ 32″ | 52′ 32″ | 122 |
| 93 | 42′ 35″ | 52′ 46″ | 125 |
| 94 | 42′ 52″ | 52′ 43″ | 131 |
| 95 | 43′ 01″ | 52′ 51″ | 128 |
| 96 | 42′ 37″ | 53′ 16″ | 144 |
| 97 | 42′ 24″ | 53′ 00″ | 120 |
| 98 | 43′ 08″ | 50′ 25″ | 132 |
| 99 | 43′ 12″ | 49′ 37″ | 129 |
| 100 | 43′ 02″ | 48′ 40″ | 138 |
| 101 | 43′ 32″ | 48′ 08″ | 124 |
| 102 | 42′ 37″ | 48′ 59″ | 126 |
| 103 | 42′ 44″ | 49′ 56″ | 119 |
| 104 | 42′ 55″ | 50′ 16″ | 125 |
| 105 | 42′ 43″ | 50′ 26″ | 123 |
| 106 | 42′ 37″ | 50′ 10″ | 113 |
| 107 | 42′ 27″ | 49′ 42″ | 119 |
| 108 | 42′ 21″ | 48′ 38″ | 113 |
| 109 | 42′ 16″ | 48′ 18″ | 117 |
| 110 | 41′ 59″ | 47′ 53″ | 105 |
| 111 | 42′ 06″ | 48′ 45″ | 121 |
| 112 | 42′ 03″ | 49′ 07″ | 114 |
| 113 | 42′ 10″ | 49′ 36″ | 127 |
| 114 | 42′ 20″ | 50′ 30″ | 126 |
| 115 | 41′ 53″ | 49′ 34″ | 108 |
| 116 | 41′ 52″ | 49′ 23″ | 109 |
| 117 | 41′ 41″ | 49′ 03″ | 107 |
| 118 | 41′ 40″ | 48′ 17″ | 108 |
| 119 | 41′ 44″ | 47′ 46″ | 108 |
| 120 | 42′ 01″ | 47′ 04″ | 108 |
| 121 | 41′ 14″ | 54′ 39″ | 101 |
| 122 | 41′ 19″ | 53′ 34″ | 86 |
| 123 | 42′ 18″ | 52′ 48″ | 120 |
| 124 | 42′ 21″ | 52′ 28″ | 116 |
| 125 | 42′ 25″ | 52′ 12″ | 111 |
| 126 | 42′ 30″ | 51′ 45″ | 116 |
| 127 | 42′ 35″ | 51′ 17″ | 104 |
| 128 | 42′ 49″ | 51′ 18″ | 124 |
| 129 | 42′ 57″ | 51′ 26″ | 114 |
| 130 | 43′ 16″ | 51′ 22″ | 122 |
| 131 | 43′ 31″ | 51′ 21″ | 128 |
| 132 | 42′ 57″ | 49′ 23″ | 126 |
| 133 | 42′ 47″ | 49′ 21″ | 118 |
| 134 | 42′ 36″ | 49′ 17″ | 120 |
| 135 | 42′ 24″ | 49′ 00″ | 126 |
| 136 | 42′ 17″ | 48′ 58″ | 109 |

TABLE I (*continued*)

| *Station Number* | *Latitude* (S.) | *Longitude* (W.) | *Magnetic Field Value* (gamma) |
|---|---|---|---|
| 137 | 51° 42′ 13″ | 57° 49′ 20″ | 108 |
| 138 | 42′ 06″ | 49′ 34″ | 108 |
| 139 | 42′ 09″ | 49′ 56″ | 108 |
| 140 | 42′ 08″ | 50′ 19″ | 102 |
| 141 | 41′ 00″ | 51′ 07″ | 110 |
| 142 | 41′ 02″ | 51′ 23″ | 103 |
| 143 | 41′ 03″ | 51′ 30″ | 99 |
| 144 | 41′ 00″ | 51′ 47″ | 101 |
| 145 | 40′ 58″ | 52′ 12″ | 108 |
| 146 | 40′ 55″ | 52′ 30″ | 100 |
| 147 | 41′ 00″ | 52′ 56″ | 94 |
| 148 | 41′ 03″ | 53′ 23″ | 94 |
| 149 | 51° 41′ 03″ | 57° 53′ 54″ | 99 |
| 150 | 40′ 52″ | 53′ 48″ | 93 |
| 151 | 40′ 52″ | 53′ 23″ | 94 |
| 152 | 40′ 54″ | 52′ 46″ | 95 |
| 153 | 40′ 53″ | 52′ 11″ | 89 |
| 154 | 40′ 56″ | 51′ 32″ | 84 |
| 155 | 40′ 55″ | 51′ 03″ | 87 |
| 156 | 40′ 51″ | 50′ 48″ | 86 |
| 157 | 40′ 56″ | 50′ 22″ | 81 |
| 158 | 40′ 53″ | 49′ 50″ | 91 |
| 159 | 40′ 57″ | 49′ 41″ | 99 |
| 160 | 40′ 56″ | 50′ 01″ | 97 |

they have an estimated error of ±5 gamma. They have been adjusted for diurnal and drift variations but regional magnetic gradient corrections are not included in the tabulated values.

The area covered by the magnetic survey is largely mantled by peat and superficial deposits, and east–west ridges of quartzite crop out in many places. Baker (1922) concluded that the quartzites are Devonian in age, about 2,500 ft. (762 m.) thick and folded into a series of anticlines and synclines with east–west axes. The intensity of magnetization of these rocks, though unmeasured, is presumed to be small. The magnetic anomalies are not greater than 20–30 gamma and there is no obvious correlation between the anomalies and the topography or the surface outcrops. No interpretation of the data has been carried out.

*MS. received 17 June 1965*

## REFERENCES

ASHLEY, J. 1961. A Magnetic Survey in the Vicinity of Port Stanley, Falkland Islands. *Falkland Islands Dependencies Survey Preliminary Geological Report*, No. 10, 3 pp.

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