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METEOROLOGICAL OFFICE.

FORECAST CODE

FOR THE

ABBREVIATION OF WEATHER FORECASTS
TRANSMITTED BY TELEGRAPHY OR
RADIOTELEGRAPHY.

Published by the Authority of the Meteorological Committee.



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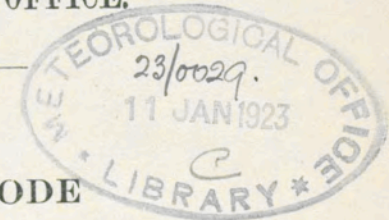
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AIR MAIL

INTERNATIONAL ORIGIN

FORECAST CODE

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RADIO TELEGRAPHY

Published by the Bureau of Meteorology

THE BUREAU OF METEOROLOGY
DEPARTMENT OF COMMERCE
WASHINGTON, D. C.
1917

FORECAST CODE

INTRODUCTION

The purpose of this code is to provide a uniform system of abbreviations for the transmission of weather forecasts by telegraph and radio telegraph. It is intended to be used by all meteorological offices in the United States and its possessions, and by all other countries which are members of the International Meteorological Organization.

The code is divided into two parts: the first part contains the abbreviations for the various elements of a weather forecast, and the second part contains the abbreviations for the various types of weather forecasts.

The abbreviations are arranged in alphabetical order, and are given in both full and abbreviated form. The full form is given in the first column, and the abbreviated form is given in the second column.

The abbreviations are given in both English and French, and are intended to be used by all meteorological offices in the United States and its possessions, and by all other countries which are members of the International Meteorological Organization.

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FORECAST CODE.

INTRODUCTION.

A coded message consists of groups of five figures, sometimes with the addition or insertion of words in plain English, and is composed of two parts. In the first part information about the weather is given and in the second part there are five-figure "check" groups which are added for the purpose of enabling errors in the first part of the message to be detected. *The method by which these check groups can be distinguished from the first part of the message is described in the section at the end of the book which deals with this matter. (See p. 17, section B.)*

The nature of the information given by any group which is not a check group is indicated by the initial figure or figures of that group. The following table shows the nature of the information contained in the individual groups of the message *after the check groups have been separated from it. (See p. 17.)*

Initial figure or figures.	Information given where group is not a check group.
00—07 (inclusive)	Latitude and longitude of place to which information in succeeding group or groups refer when that place has both North latitude and West longitude.
08... ..	Latitude or longitude of place to which information in succeeding group or groups refers when that place has <i>not</i> both North latitude and West longitude.
09... ..	Day of the week and hour of observations used in the message.
1... ..	Types of pressure distribution and changes.
2... ..	Time and area covered by the general forecast (when used more than once in a message:—time and area to which the groups immediately following it refer).
	N.B.—The time specified may be the present. The group can therefore be used for defining the position of a depression or anticyclone.
3... ..	Wind direction.
4... ..	Wind force.
50—53 (inclusive)	Wind direction and velocity.
59... ..	Changes of wind.
60—65 (inclusive)	Height in thousands of feet.
66... ..	Height in hundreds of feet.
7... ..	Temperature.
8... ..	Mist, fog and visibility.
90... ..	Cloudiness.
91... ..	Rain, hail, snow, etc., or thunderstorms.
92... ..	Barometric changes in past 3 hours.

In any case where the information corresponding with any figure cannot be given, a hyphen is inserted in place of the figure. In the computation of check figures the hyphen is counted as zero.



Forecast Districts. See pp. 7 and 8.

THE METEOROLOGICAL CODE.

Initial Figures 00 to 07, inclusive.

All groups beginning with 0 except 08 and 09 (*see below*) give the North latitude and West longitude of the place to which the information refers.

The 2nd and 3rd figures give the North latitude in whole degrees.

The 4th and 5th figures give the West longitude in whole degrees.

This group is suitable for describing positions in the Atlantic and over the extreme Western parts of Europe and North Africa, and the Eastern parts of North America.

Example :

05632 means latitude 56 N longitude 32 W.

Initial Figure 08.

All groups beginning with 08 occur in pairs. The first group of the pair gives the quarter of the globe (3rd figure) and the latitude in whole degrees (4th and 5th figures) of the place to which the information refers—the second group of the pair gives the longitude (3rd, 4th and 5th figures) to the nearest whole degree.

The code for indicating the quarter of the globe (3rd figure of 1st group) is as follows :—

Code Number	Latitude	Longitude
1	N	W
2	N	E
3	S	W
4	S	E

Example :

08256 08004

means latitude 56° N longitude 4 E.

08250 08014

means latitude 50° N longitude 14 E.

(For special arrangement for the North Atlantic, *see above*.)

Initial Figure 09.

DATE AND HOUR OF REPORT.

All groups commencing with 09 refer to the day of the week and the hour (G.M.T.) of the observations on which the report is based. The last three figures of such groups specify :

- 3rd figure.—Day of the week (*see table below*).
 4th and 5th figures.—Hour of the day of the observations on which the report is based, the hours being numbered from 01 to 24 (12 noon, 24 midnight).

Example :

09418 Weather report based on observations on Wednesday at 6 p.m. (18h. G.M.T.).

TABLE FOR 3RD FIGURE.

Day of Week.	Code Figure.
Sunday	1
Monday	2
Tuesday	3
Wednesday	4
Thursday	5
Friday	6
Saturday	7

Initial Figure 1.

Type of pressure distribution and anticipated motion thereof.

All groups commencing with 1 refer to the type of pressure distribution, and the anticipated direction of motion of the system described. The position of a depression or anticyclone is inserted immediately *before* this group, and may either be stated in words or be denoted by giving its latitude and longitude (by groups beginning with 00, 01, etc., up to 08), or by using the group beginning with 2. The last 4 figures of these groups specify respectively :—

2nd Figure—Type of pressure distribution.

3rd Figure—Changes in the nature of the system.

4th and 5th Figures—Direction (in points, *see p. 7*), towards which motion is anticipated.

2ND FIGURE.

Type of Pressure Distribution.

- 0—Type of pressure distribution unchanged since previous report.
 1—Anticyclone off
 2—Anticyclone centred over (or near)
 3—Extensive anticyclone covering
 4—Anticyclone wedge.
 5—Depression centred off
 6—Depression centred over (or near)
 7—Depression covering wide area centred over (or near)
 8—V-shaped depression, trough over
 9—Secondary depression (or depressions).

3RD FIGURE.

Changes in Nature of System.

- 0—No important change in progress.
 1—(a) Circulation of wind increasing in cyclone accompanied by fall of pressure near the centre.
 (b) Rise of pressure in anticyclone near the centre.

- 2—(a) Circulation of wind increasing in cyclone without marked change of pressure near the centre.
 (b) No marked change of pressure near the centre in anticyclone.
 3—(a) Circulation of wind decreasing accompanied by rise of pressure near the centre.
 (b) Fall of pressure near the centre in anticyclone.
 4—(a) Circulation of wind decreasing in cyclone but no marked change of pressure near the centre.
 (b) No marked change of pressure near the centre in anticyclone.
 5—Spreading in the direction given by the last two figures in the group (without necessarily any change in the position of the centre).
 6—Extending its influence generally.
 7—System has appeared since last report was sent.
 8—System not actually shown on the map but the general distribution of pressure suggests its early development.
 9—Changes either complex or expressible by a group commencing with 92 (see p. 15).

4TH AND 5TH FIGURES.

Directions towards which motion is anticipated in points.

- (08—towards East, 16—towards South, 32—towards North, etc.)
 00—remaining stationary.
 99—no specification of direction.

Examples :

- (1) 20046 12100—Stationary anticyclone over England, with rising barometer near its centre.
 (2) 20048 18708—V-shaped depression with trough over Ireland has appeared since last report was sent, and will move eastwards.
 (3) 20045 19812—Conditions favourable for development of secondary depressions over the British Isles moving towards the south-east.

Initial Figure 2.

TIME AND AREA COVERED BY FORECAST (OR AREA COVERED IN STATEMENT OF EXISTING CONDITIONS).

All groups commencing with figure 2, when not stating simply an area, give the time and area to which the forecast is applicable, or the time and area to which the forecast group or groups immediately following this "2" group refer; in such cases the forecast groups are themselves followed either by another "2" group, or, if they complete the message, by check groups.

The last four figures of a "2" group specify respectively :

2nd and 3rd figures—(1) The number of hours covered by the forecast reckoned from the hour of observation specified at the beginning of the message. *Figures 00 indicate that the following groups give a statement of conditions prevailing at that hour, and not a forecast.* (2) Figures 51–94. The time at which a change is expected to take place.

4th and 5th figures—The area to which the forecast (or description) applies.

2ND AND 3RD FIGURES.

Time.

- 00—Statement of conditions at the fixed hour (given by group commencing 09).
 01—No specification.
 12—Forecast for ensuing 12 hours.
 24—Forecast for ensuing 24 hours.
 36—Forecast for ensuing 36 hours.
 48—Forecast for ensuing 48 hours.
 97—Outlook beyond period of forecast.
 98—Outlook for 2 or 3 days beyond period of forecast.

Forecast for a change to take place at about the times indicated.

51 To-night.	74 About 4 a.m.
52 To-morrow.	75 " 5 a.m.
53 This afternoon.	76 " 6 a.m.
54 To-morrow morning.	77 " 7 a.m.
55 To-morrow night.	78 " 8 a.m.
56 Later.	79 " 9 a.m.
57 At first.	80 " 10 a.m.
58 For a few days.	81 " 11 a.m.
59 For a spell.	82 " noon.
60 After to-morrow.	83 " 1 p.m.
61 Sunday.	84 " 2 p.m.
62 Monday.	85 " 3 p.m.
63 Tuesday.	86 " 4 p.m.
64 Wednesday.	87 " 5 p.m.
65 Thursday.	88 " 6 p.m.
66 Friday.	89 " 7 p.m.
67 Saturday.	90 " 8 p.m.
70 About midnight.	91 " 9 p.m.
71 " 1 a.m.	92 " 10 p.m.
72 " 2 a.m.	93 " 11 p.m.
73 " 3 a.m.	94 " midnight.

4TH AND 5TH FIGURES.

*Place or Area.**Places.*

00 London.	07 Sheffield.	14 Brussels.
01 Edinburgh.	08 Manchester.	15 Amsterdam.
02 Dublin.	09 Newcastle.	16 Copenhagen.
03 Plymouth.	10 Glasgow.	17 Berlin.
04 Birmingham.	11 Aberdeen.	18 Lyons.
05 Hull.	12 Belfast.	19 Rome.
06 Liverpool.	13 Paris.	20 Locality of addressee.

Districts of British Isles

(see frontispiece).

- 21 South-Eastern England (Western part).
 22 South-Eastern England (Eastern part).
 23 South-Western England (Western part).
 24 South-Western England (Eastern part).
 25 Eastern England.
 26 Eastern Midlands.
 27 Western Midlands.
 28 South Wales.
 29 North Wales.
 30 North-Western England.
 31 Northern Midlands.
 32 North-Eastern England.

Districts of British Isles—contd.

- 33 Eastern Scotland.
- 34 South-Western Scotland.
- 35 Isle of Man.
- 36 North and North-West Scotland.
- 37 Hebrides.
- 38 Orkneys and Shetlands.
- 39 North-Western Ireland.
- 40 North-Eastern Ireland.
- 41 South-Eastern Ireland.
- 42 South-Western Ireland.
- 43 Region within radius of 20 miles of addressee.
- 44 Region within radius of 100 miles of addressee.

Combinations of Districts of the British Isles.

- | | <i>Districts (see frontispiece).</i> |
|---|--------------------------------------|
| 45 British Isles | (21-42) |
| 46 England | (21-32) |
| 47 Scotland | (33-38) |
| 48 Ireland... .. | (39-42) |
| 49 England and Scotland | (21-38) |
| 50 Southern Section of Britain... .. | (21-29) |
| 51 Northern Section of Britain... .. | (30-38) |
| 52 Ireland and Scotland... .. | (33-42) |
| 53 Southern Section of British Isles | (21-29 and 41-42) |
| 54 Northern Section of British Isles | (30-40) |
| 55 South-West England... .. | (23-24) |
| 56 South-Western Section of British Isles | (23, 24, 28, 41 and 42) |
| 57 South-East England | (21-22) |
| 58 South-Eastern Section of British Isles | (21, 22, 25-27) |
| 59 North-Western Section of British Isles | (29-30, 34-37, 39-40) |
| 60 North-Eastern Section of British Isles | (32, 33 and 38) |
| 61 Western Part of England | (23-24, 28-30) |
| 62 Eastern Part of England | (21, 22, 25, 26, 31 and 32) |
| 63 Northern England and South Scotland | (29-35) |

Continental Districts (see Frontispiece).

- 64 France (North-Eastern Part).
- 65 " (North-Western Part).
- 66 " (South-Western Part).
- 67 " (South-Eastern Part).
- 68 Holland and Belgium.
- 69 Denmark.
- 70 Southern Norway.

Sea Districts.

- 71 English Channel (Western Part).
- 72 " " (Central Part).
- 73 " " (Eastern Part).
- 74 North Sea (South-Western Part).
- 75 " " (Central-Western Part).
- 76 " " (North-Western Part).
- 77 " " (South-Eastern Part).
- 78 " " (Central-Eastern Part).
- 79 " " (North-Eastern Part and Skagerak).
- 80 North Channel to Minch.
- 81 Irish Sea.
- 82 St. George's Channel and Bristol Channel.
- 83 Atlantic Ocean (Southward of Ireland).
- 84 Atlantic Ocean (Bay of Biscay).
- 85 Atlantic Ocean (off Iberian Coast).
- 86 Atlantic Ocean (Westward of Ireland).
- 87 Atlantic Ocean (Scotland to Iceland).
- 88 Baltic (Western part).

Combinations of Oceanic and Continental Districts.

Districts (see Frontispiece).

- 89 North Sea (74-79)
- 90 North Sea (Western half) (74-76)
- 91 " " (Eastern half) (77-79)
- 92 " " (Northern Part) (76, 79)
- 93 " " (Southern Part) (74, 77)
- 94 " " (Central Part) (75, 78)
- 95 Eastern Channel and South-Western Part of North Sea (73, 74)
- 96 English Channel (71-73)
- 97 S.E. England to N.E. France (22, 73, 64)
- 98 S. England and Northern France (21-24, 71-73, 64, 65)
- 99 No specification.

Examples :

- 20021—Conditions prevailing at the time indicated by the first group of the message over the western part of S.E. England.
- 22429—Forecast for the ensuing 24 hours for N. Wales.
- 26012—After to-morrow in Belfast.

Initial Figure 3.

WIND DIRECTION.

All groups commencing with figure 3 refer to Wind Direction which is specified in points.

- | | |
|-----------|-----------|
| 02—N.N.E. | 18—S.S.W. |
| 04—N.E. | 20—S.W. |
| 06—E.N.E. | 22—W.S.W. |
| 08—E. | 24—W. |
| 10—E.S.E. | 26—W.N.W. |
| 12—S.E. | 28—N.W. |
| 14—S.S.E. | 30—N.N.W. |
| 16—S. | 32—N. |

00—Calm.

399. Groups commencing with 399 specify a single direction.

Example :

39916—Wind from South.

39999 specifies a variable direction.

Other groups commencing with 3 specify a range of directions.

Example :

31624—Wind from between S. and W.

Initial Figure 4.

WIND FORCE.

All groups commencing with figure 4 refer to wind force near the surface. Wind force is specified on the Beaufort Scale.

- | | |
|-------------------------|-----------------|
| 00—Calm. | |
| 01—Light air | 1- 3 m.p.h. |
| 02—Slight breeze | 4- 7 m.p.h. |
| 03—Gentle breeze | 8-12 m.p.h. |
| 04—Moderate wind... .. | 13-18 m.p.h. |
| 05—Fresh wind | 19-24 m.p.h. |
| 06—Strong wind | 25-31 m.p.h. |
| 07—High wind | 32-38 m.p.h. |
| 08—Gale | 39-46 m.p.h. |
| 09—Strong gale | 47-54 m.p.h. |
| 10—Whole gale | 55-63 m.p.h. |
| 11—Storm | 64-75 m.p.h. |
| 12—Hurricane | Above 75 m.p.h. |

499. Groups commencing with 499 specify a single force.

Example :

49905—Fresh wind (about 19–24 m.p.h.).

Other groups commencing with 4 specify a range of forces.

Example :

40405—Moderate or fresh wind (Beaufort 4 and 5).

Initial Figures 59.

CHANGES OF WIND.

All groups commencing with figures 59 refer to changes of wind. The last three figures of such groups specify respectively :—

3rd Figure—Changes of direction.

4th Figure—Changes of force.

5th Figure—Character of wind, or precise change of force according to the scheme :—

3RD FIGURE.	4TH FIGURE.
<i>Changes of Direction.</i>	<i>Changes of Force.</i>
0 No change.	0 No change.
1 Veering.	1 Increasing.
2 Veering about 4 points.	2 Increasing gradually.
3 Veering about 8 points.	3 Increasing temporarily.
4 Veering 12 or 16 points.	4 Increasing considerably.
5 Backing.	5 Decreasing.
6 Backing about 4 points.	6 Decreasing gradually.
7 Backing about 8 points.	7 Decreasing temporarily.
8 Backing 12 or 16 points.	8 Decreasing considerably.

5TH FIGURE.

Character of wind or force to which change will lead.

- 0 No specification.
- 1 Squally.
- 2 With heavy squalls
- 3 Calm or light.
- 4 Moderate.
- 5 Fresh.
- 6 Strong.
- 7 High.
- 8 Gale.
- 9 Force 9 or above.

Example :

25355 59518—Wind backing and increasing to a gale this afternoon in S.W. England.

Initial Figure 5.

UPPER WIND DIRECTION AND VELOCITY.

All groups commencing with figures 50 to 53 (inclusive) specify wind direction on scale 1 to 36 (2nd and 3rd figures) and wind velocity in miles per hour (last two figures). The wind is for the height specified by the following group beginning with 6 unless no such height group follows, in which case it is for a height of about 2,000 feet.

Examples :

(1) 51623—Wind from 160° velocity 23 m.p.h., at 2,000 feet (direction in degrees is obtained by multiplying the code number by 10, e.g., $16 \times 10 = 160^\circ$ in the example given, the wind therefore being from a point 160° clockwise from due North, i.e., from nearly S.S.E.).

(2) 52035 60510—Wind 35 m.p.h. from 200° between heights of 5,000 and 10,000 feet.

Initial Figure 6.

HEIGHT GROUP.

All groups commencing with 6 refer to height above sea level. 66. Groups commencing with 66 give height in hundreds of feet.

Examples :

66025—2,500 feet.

66130—13,000 feet.

Other groups commencing with 6 give a range of heights in thousands of feet, the lower height being always given first.

Examples :

60105—Between 1,000 and 5,000 feet.

60714—Between 7,000 and 14,000 feet.

Initial Figure 7.

TEMPERATURE.

All groups commencing with figure 7 refer to temperature.

- 70000 Temperature falling slightly.
- 70101 Temperature falling.
- 70202 Temperature falling decidedly.
- 70303 Temperature falling slowly.
- 70404 Temperature falling rapidly.
- 70505 Temperature falling about 5°.
- 70606 Temperature falling about 10°.
- 70707 Temperature falling to-morrow.
- 70808 Warm at first, temperature falling later.
- 72020 Temperature rising slightly.
- 72121 Temperature rising.
- 72222 Temperature rising decidedly.
- 72323 Temperature rising slowly.
- 72424 Temperature rising rapidly.
- 72525 Temperature rising about 5°.
- 72626 Temperature rising about 10°.
- 72727 Temperature rising to-morrow.
- 72828 Cold at first, temperature rising later.
- 74040 Temperature about normal.
- 74141 Moderate temperature.
- 74242 Little change of temperature.
- 74343 Temperature nearly the same day and night.
- 74444 Temperature very uniform.
- 75050 Temperature below normal.
- 75151 Rather cool.
- 75252 Rather cold.
- 75353 Cold night, warm day.
- 75454 Very cold.

- 75555 Spell of cold weather anticipated.
- 75656 Cold at night with ground frost locally, warm by day.
- 75757 Cool, ground frost locally.
- 75858 Risk of ground frost at night.
- 75959 Frost at night, temperature moderate during the day.
- 76060 Frost inland at night.
- 76161 Keen frost.
- 76262 Sharp frost at night.
- 76363 Frost day and night.
- 76464 Spell of frost anticipated.
- 76565 Indications of break up of frost.
- 76666 Slight thaw.
- 76767 Partial thaw.
- 76868 General thaw.
- 77070 Temperature above normal.
- 77171 Rather warm.
- 77272 Rather hot.
- 77373 Very warm.
- 77474 Spell of mild weather anticipated.
- 77575 Hot day.

Initial Figure 8.**MIST, FOG AND VISIBILITY.**

All groups commencing with figure 8 refer to mist, fog, or visibility. The last four figures of the group specify respectively :—

- 2nd Figure—Intensity of obscurity or degree of visibility,
- 3rd Figure—Locality of occurrence,
- 4th Figure—Time of occurrence,
- 5th Figure—Changes in intensity,

according to the following scheme :—

2ND FIGURE.*Intensity.*

- 0 Dense fog (objects not visible at 55 yards).
- 1 Thick fog (objects visible at 55 but not at 220 yards).
- 2 Fog (objects visible at 220 but not at 550 yards).
- 3 Moderate fog (objects visible at 550 but not at 1,100 yards).
- 4 Mist or thick haze (objects visible at 1,100 yards but not at $1\frac{1}{4}$ miles).
- 5 Mist or haze (objects visible at $1\frac{1}{4}$ miles but not at $2\frac{1}{2}$ miles).
- 6 Slight mist or haze (objects visible at $2\frac{1}{2}$ miles but not at $6\frac{1}{4}$ miles).
- 7 Good visibility (objects visible at $6\frac{1}{4}$ miles but not at $12\frac{1}{2}$ miles).
- 8 Very good visibility (objects visible at $12\frac{1}{2}$ miles but not at $31\frac{1}{4}$ miles).
- 9 Excellent visibility (objects visible beyond $31\frac{1}{4}$ miles).

3RD FIGURE.*Locality.*

- 0 No specification.
- 1 Inland.
- 2 On the coast.
- 3 At sea.
- 4 On coast and at sea.
- 5 Locally (patchy).
- 6 On the hills.
- 7 In the valleys.
- 8 In the town.
- 9 Near the ground.

4TH FIGURE.*Time of Occurrence.*

- 0 No specification.
- 1 Intermittent, occasional, at times.
- 2 Persistent, or continuous.
- 3 In morning.
- 4 In afternoon.
- 5 In evening.
- 6 Morning and evening.
- 7 In the day.
- 8 At night.
- 9 Later.

5TH FIGURE.*Changes in Intensity.*

- 0 No specification.
- 1 No change anticipated.
- 2 Visibility improving 1 or 2 points.
- 3 Visibility improving 2 or 3 points.
- 4 Visibility becoming fair or good.
- 5 Clearing during the day.
- 6 Visibility deteriorating 1 or 2 points.
- 7 Visibility deteriorating 2 or 3 points.
- 8 Visibility becoming bad.
- 9 Becoming misty or foggy at night.

Example :

80720, 88600—Continuous dense fog in the valleys, very good visibility on the hills.

Initial Figures 90.**CLOUDINESS.**

All groups commencing with 90 refer to cloudiness. The last three figures of such groups specify respectively :—

- 3rd Figure—Amount of cloud (weather without reference to precipitation),
- 4th Figure—Height of base of lowest cloud,
- 5th Figure—Changes in cloud amount,

according to the following scheme :—

3RD FIGURE.*Cloud Amount or Weather.*

- 0—Cloudless.
- 1—Fine (cloudless or slight cloud).
- 2—Fair (about half covered).
- 3—Cloudy (more than half covered).
- 4—Mainly overcast.
- 5—Completely overcast.
- 6—Alternating cloudless and overcast periods.
- 7—Cloudless in some places, overcast in others.

4TH FIGURE.*Height of base of lowest cloud.*

- 0—Base of cloud below 1,000 feet.
- 1— " " 0—300 "
- 2— " " 300—600 "
- 3— " " 600—1,000 "
- 4— " " 1,000—2,000 "
- 5— " " 2,000—3,000 "
- 6— " " 3,000—5,000 "
- 7— " " 5,000—6,500 "
- 8— " " 6,500—8,000 "
- 9— " " No low cloud.

5TH FIGURE.

Changes in amount.

- 0 — No specification.
- 1 — Cloud increasing.
- 2 — Cloud decreasing.
- 3 — No conspicuous change.
- 4 — Cloud developing by day, clearing at night (diurnal range).
- 5 — Cloud decreasing in late afternoon.
- 6 — Varying irregularly.
- 7 — At first.
- 8 — Later.

Example :

90097, 90598—Cloudless at first, sky becoming entirely covered by high cloud later.

Initial Figures 91.

PRECIPITATION.

All groups commencing with figures 91 refer to precipitation. The last three figures of such groups specify respectively :—

3rd Figure—The form of precipitation,

4th Figure—The manner of its fall,

5th Figure—Time and place,

according to the scheme :—

3RD FIGURE.

Form.

- 0 — Precipitation.
- 1 — Rain or sleet, perhaps snow.
- 2 — Rain or sleet.
- 3 — Sleet or snow.
- 4 — Drizzle.
- 5 — Rain.
- 6 — Snow (or snow and hail).
- 7 — Sleet or rain and snow.
- 8 — Hail or rain and hail.
- 9 — Thunderstorms.

4TH FIGURE.

Character.

- 0 — Slight occasional.
- 1 — Slight continuous.
- 2 — Passing showers.
- 3 — Heavy passing showers.
- 4 — Moderate occasional.
- 5 — Moderate continuous.
- 6 — Light.
- 7 — Heavy.
- 8 — Heavy occasional.
- 9 — No specification.

5TH FIGURE.

Distribution Time and Changes.

- 0 — Local.
- 1 — General.
- 2 — Frequent.
- 3 — At first.
- 4 — Later.
- 5 — This afternoon.
- 6 — To-morrow.
- 7 — Decreasing in intensity.
- 8 — Increasing in intensity.
- 9 — No specification.

Examples :

90430, 91503—Mainly overcast, base of cloud between 600 and 1,000 feet, occasional slight rain at first.

90097, 90358, 91974—Fine at first, cloudy, with cloud base between 2,000 and 3,000 feet and heavy thunderstorms later.

Initial Figures 92.

BAROMETRIC CHANGES.

All groups commencing with figures 92 refer to barometric change in the past 3 hours. The last three figures of such groups specify respectively :—

3rd Figure—Characteristic of changes,

4th Figure—Intensity of rise or fall,

5th Figure—Region in which important changes are occurring,

according to the scheme :—

3RD FIGURE.

Characteristic.

- 0 — Steady or rising.
- 1 — Rising, then steady.
- 2 — Rising, then falling.
- 3 — Falling or steady, then rising.
- 4 — Unsteady, but rising.
- 5 — Falling.
- 6 — Falling, then steady.
- 7 — Falling, then rising.
- 8 — Steady or rising, then falling.
- 9 — Unsteady, but falling.

The barometer is now higher than or the same as three hours ago.

The barometer is now lower than three hours ago.

4TH FIGURE.

Intensity of change.

- 0 — Steady (tendency 0 or 1).
- 1 — Slight (tendency 2 or 3).
- 2 — Moderate (tendency 4 or 5).
- 3 — Brisk (tendency 6 or 7).
- 4 — Rapid (tendency 8 or 9).
- 5 — Rapid (tendency 10-12).
- 6 — Very rapid (tendency 13-16).
- 7 — Very rapid (tendency 17-25).
- 8 — Exceptional (tendency above 25).
- 9 — No specification.

5TH FIGURE.

Region.

- 0 — Position given by latitude and longitude.*
- 1 — Shetlands.
- 2 — Hebrides.
- 3 — West Coast of Ireland.
- 4 — Scilly.
- 5 — East Coast of England.
- 6 — Scandinavia.
- 7 — Bay of Biscay.
- 8 — Iceland.
- 9 — Generally.

* The position is given by the group or groups beginning with "0" preceding this barometric group. If these give a definite latitude and longitude the barometric group applies roughly to the area within a radius of 100 miles of the specified position in the case of a falling barometer.

Examples :

92833—Brisk fall of the barometer has commenced off the west coast of Ireland.

92642—Rapid fall of the barometer in the Hebrides has checked, now nearly steady.

Addition of Check Groups.

This system has been devised in order that errors made in transmission may in most cases be detected.

A. CODING.

The method of compiling such groups is as follows :—

Suppose the coded forecast is

09507	20045	13100	22400	33204	40405	50430
60106	25100	59063	76262	83880	90190	

Rewrite the figure groups in a vertical column, and to the right of each write the terminal figure of the number obtained by adding together the figures in that group. Do the same for each of the five vertical columns, writing the result underneath (the figures obtained in this way are shown in round brackets):

0	9	5	0	7	(1)
2	0	0	4	5	(1)
1	3	1	0	0	(5)
2	2	4	0	0	(8)
3	3	2	0	4	(2)
4	0	4	0	5	(3)
5	0	4	3	0	(2)
6	0	1	0	6	(3)
2	5	1	0	0	(8)
5	9	0	6	3	(3)
7	6	2	6	2	(3)
8	3	8	8	0	(7)
9	0	1	9	0	(9)

(4) (0) (3) (6) (2) [5]

Lastly, the terminal figure of the number found by adding together the five bracketed figures beneath the five columns must be the same as the terminal figure of the number found by adding the bracketed numbers to the right of each five-figure group. This is called the key figure and is shown in square brackets at the bottom right-hand corner of the diagram. All these bracketed figures constitute the check figures, and those forming the right-hand side of the diagram must be added to the original message in groups of five, beginning at the top and working down to (and including) the key figure, adding dashes if necessary. In the case given three such groups would be formed, viz., 11582 32383 3795-. Then add the remaining

five-figure group at the foot of the diagram so as to form a complete message ready for transmission, which will read as follows :—

09507	20045	13100	22400	33204	40405	50430	60106
25100	59063	76262	83880	90190	11582	32383	3795-
40362							

B. DECODING.

The following rules enable the check groups to be separated from the forecast groups on receipt of any message :—

When the total number of groups received does not exceed 6 the last 2 are check groups.
 " " " " " exceeds 6 but not 12 the last 3 are check groups.
 " " " " " exceeds 12 but not 18 the last 4 are check groups.
 " " " " " exceeds 18 but not 24 the last 5 are check groups.

On receiving any message, mark off the check groups from the first part of the message, then write down this first part, group beneath group, in a column, and construct a diagram like the one below. Suppose, for example, that the following message (which contains errors of transmission) has been received :—

19601	20048	12220	slowly	22441	22942	39999	40002
75252	89000	86510	90196	64734	26170	52--	64381

Since there are altogether 15 groups the last four are check groups. After writing down the first part of the message (11 groups) in a column, the next stage is to write in the check figures. The first check figure, which is "6" is written opposite to the first forecast group (19601) and so on, the result being :—

1	9	6	0	1	6	[9]
2	0	0	4	8	4	
1	2	2	2	0	7	
2	2	4	4	1	3	
2	2	9	4	2	4	[5]
3	9	9	9	9	2	[3]
4	0	0	0	2	6	
7	5	2	5	2	1	
8	9	0	0	0	7	
8	6	5	1	0	0	
9	0	1	9	6	5	
<hr/>						
6	4	3	8	1	2	
[9]	[5]				[7]	

The next step is to add up the figures in each row and column, and where the terminal figure of any such total is not the same as the corresponding check figure, to write down the figure which must be added to that total to bring it into agreement with its check figure (these figures are shown in the diagram in square brackets).

Probably since the first row and the first column have both the error "9," this occurs in the only figure common to both, *i.e.*, the initial "1" of the first row; if we add the error "9" to this figure "1" we probably arrive at the correct figure, in this case "0" (actually the sum is "10," but we take the second figure). Similarly the error 5 occurs at the intersection of the 5th row and the third column, *i.e.*, the figure "9" of the fifth row is probably wrong, and if we add the error "5" we shall probably get the correct figure, in this case "4." The key figure "2" is in agreement with the check figures on its left, but not with those above it, so that an error must have been made somewhere in the latter. This error is probably in the sixth row, for the "9" and "5" are in the first and fifth rows, and there is only the sixth row left with a clear error in it. Evidently, the check figure "2" in the sixth row should have been "9."

The message before transmission would have been :—

09601	20048	12220	slowly	22441	22442	39999	40002
75252	87000	86510	90196	64734	96150	50- -	62381

which decodes into :—

"Weather report based on observations at 1 a.m. on Friday : Anticyclone over Ireland moving slowly south-west without marked change of pressure near the centre. Forecast for southern Ireland for next 24 hours : calms or light variable (Beaufort 1—2) breezes, rather cold, visibility good but slight mist or haze at times locally, cloudless apart from a slight amount of high cloud."

NOTE.—It is not possible to lay down an absolute rule for identifying errors in all cases that may arise, but there should seldom be any serious difficulty.

Meteorological Office,
Air Ministry,
Kingsway, W.C.2.

December, 1922.

