

Министерство образования и науки Украины  
Севастопольский национальный технический университет



## Морская метеорология = Maritime Meteorology

Методические указания  
к практическим занятиям по дисциплине  
«Английский язык» для студентов III курса  
специальности 7.100301 «Судовождение и энергетика судов»  
факультета МТС (V семестр)  
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Морская метеорология = Maritime Meteorology. Методические указания к практическим занятиям № 1-3 по дисциплине «Английский язык» для студентов III курса специальности 7.100301 «Судовождение и энергетика судов» факультета МТС (V семестр) дневной и заочной форм обучения / Сост. Ю.А Сабадаш. – Севастополь: Изд-во СевНТУ, 2012 – 33 с.

Методические указания предназначены для практических занятий в VI семестре по дисциплине «Английский язык» для студентов факультета МТС III курса дневной и заочной форм обучения. Целью данных методических указаний является закрепление у студентов умений и навыков чтения литературы по специальности, активизации навыков речевой деятельности в рамках специальности, представлены лексико-грамматические упражнения на закрепление материала урока.

Методические указания утверждены на заседании кафедры практики романских и германских языков (протокол № 12 от 5.10.2011г.).

Допущено учебно-методическим центром и научно – методическим Советом СевНТУ в качестве методических указаний.

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## ВВЕДЕНИЕ

Методические указания предназначены для практических занятий студентов III курса технических вузов специальностей факультета «Морских технологий и судоходства». Данные методические указания могут быть использованы, как и на практических, аудиторных занятиях студентов дневной формы обучения, так и для самостоятельной работы студентов заочного отделения.

Целью данных методических указаний является активизация и закрепление у студентов умений и навыков чтения литературы по специальности, развитие навыков речевой деятельности в рамках специальности, расширение словарного запаса по теме «Общий курс метеорологии». Указания направлены на подготовку студентов к работе с метеосводками на английском языке. Обладание подобными знаниями на английском языке повышает уровень профессиональной подготовки судоводителей и является важным критерием оценки его как конкурентоспособной личности, что не маловажно при приеме на работу. Актуальность данного утверждения подтверждает необходимость рассмотрения следующих методических указаний.

Методические указания состоят из трех уроков, которые охватывают следующие темы: General Maritime Meteorology; Depressions; Fogs. Лексический материал имеет профессионально направленный характер в соответствии с требованием программы III курса обучения.

Каждый из уроков включает предтекстовые упражнения, тексты для чтения и пересказа, лексические упражнения профессионального содержания, грамматические упражнения и задания, связанные с активацией устной речи. Контроль осуществляется при выполнении упражнений на перевод с русского языка на английский (и наоборот) и при проведении бесед на заданную тему.

Данные указания предлагают краткий словарь терминов, используемых в метеосводках и список основных сокращений, применяемых на картах погоды иностранных государств.

## Unit I. General Maritime Meteorology

### Vocabulary

Read these words and word combinations. Learn them.

Pressure— давление

Pressure gradient – перепад давления

Scale – шкала

Centigrades – градусы Цельсия

Obsolete– устаревший

Vapour– пар (ы)

Moisture– влага (наличие/присутствие)

Humidity– влажность (количественный показатель)

Saturation– насыщенность (влажностью воздуха)

Precipitation – осадки

Drizzle – изморозь, мелкий дождь

Hail – град

Sleet – дождь со снегом, слякоть

Rotation – вращение

Hemisphere– полушарие

Equatorial Trough– экваториальная депрессия (ложбина)

Equatorial latitudes – экваториальные (южные) широты

Horse Latitudes – широты штилевого пояса, «конские широты»

Trade Wind – пассат

Variable – меняющийся ветер

Westerlies – западные ветры

Prevailing wind– преобладающий ветер

Barren coast – пустынное побережье

Swamp– болото

High ground – возвышенность

To comprise – составлять

Merely – только, просто

**Exercise 1.** Read the text quickly and discuss these problems then.

1. What meteorological elements do you know?
2. What do you know about temperature, humidity and atmospheric pressure?
3. How does air naturally flow?
4. What is "Equatorial Trough"?
5. Where do trade winds originate?
6. Why are Polar Regions unnavigable?
7. In what regions do breezes usually occur?

**Exercise 2.** Scanning of the text: Define the specific items of the information of the text. Propose the best summary of the text.

### Text

## General Maritime Meteorology

Weather conditions have a great influence on the safety during a voyage and should always be taken into consideration in voyage-planning and when underway.

The state of the atmosphere is determined by various meteorological elements, such as temperature, humidity, cloudiness and fog, forms of precipitation, atmospheric pressure, and speed and direction of wind. All these elements may be referred to as "the weather".

### Temperature

Any change in temperature is significant in weather-forecasting. When measuring temperatures three different Scales can be used: 1 - the scientifically used Kelvin-scale, also referred to as the absolute scale; 2 - the commonly used Celsius-scale, which measures a temperature in centigrades; 3 - the obsolete Fahrenheit-scale.

**Humidity** refers to the amount of water vapour in the air. Warm air is capable to contain a higher grade of moisture, or humidity, than cold air. The maximum amount of moisture that air can hold at a specific temperature is known as "saturation".

**Precipitation** is formed when the droplets or ice crystals in clouds have become sufficiently large to fall to the ground. Precipitation may take a variety of forms, for example rain, snow, drizzle, hail or sleet.

### Atmospheric pressure

Because of its weight the atmosphere exerts a pressure on the surface of the Earth; this pressure varies from place to place depending on the density of the air of which it is comprised.

Pressure is measured by means of the barometer and was usually expressed in millibars (mb) but now frequently given in hectopascal (h Pa) which are numerically identical.

### Wind

Wind is the most important factor that determines the condition of the weather. Wind is merely an amount of air that moves in a horizontal motion over the earth from an area of high barometric pressure towards an area of low barometric pressure. Falling barometric pressure generally indicates that a gale or storm is approaching; rising pressure indicates the approach or continuation of fair weather. An area of low pressure is called a cyclone. A high-pressure area is an anticyclone.

Because of the rotation of the earth, the circulations of winds in the northern hemisphere tend to be clockwise around areas of high pressure, and anti-clockwise around low-pressure areas. In the southern hemisphere the directions of circulation are the opposite. Wind is always named after the direction it is coming from, not blowing in.

## Equatorial Trough

A broad belt of shallow low pressure and weak pressure gradients towards which the Trade Wind air streams of the N and S hemispheres flow is termed the "Equatorial Trough" or "Doldrums". The trough moves N and S seasonally and in some regions, particularly in the vicinity of large land masses, its seasonal migration takes it well outside equatorial latitudes.

## Trade Winds

Air streams originate in the sub-tropical oceanic anticyclones of the N and S hemispheres and blow on the E and equatorial flanks of the anticyclones towards the Equatorial Trough. General direction is NE in the N hemisphere, SE in the S hemisphere. Average wind strength is force 3—4, and in each hemisphere maximum strength is reached in spring.

## Variables

Over the areas covered by the oceanic anticyclones, between the Trade Winds and the Easterlies farther towards the poles, there exist zones of light and variable winds which are known as Variables; the N area is sometimes known as the Horse Latitudes ( $30^{\circ}\text{N}$ — $40^{\circ}\text{N}$ ).

## Polar Regions

Lying on the polar side of the Westerlies, the Polar Regions are mainly unnavigable on account of ice. The prevailing wind is generally from E direction and gales are common in winter.

## Land and sea breezes

The regular daily cycle of land and sea breezes is a well-known feature of tropical and sub-tropical coasts and large islands. The cause of these breezes is the unequal heating and cooling of the land and sea.

Sea breezes usually set in during the forenoon and reach maximum strength, about force 4 (occasionally 5 or 6) in mid-afternoon. They die away around sunset. Land breezes set in late in the evening and fade shortly after sunrise; they are usually weaker and less well marked than sea breezes. The following factors favour development of land and sea breezes: clear or partly cloudy skies; calm conditions of light variable winds; desert or dry barren coast as opposed to forests or swamps; high ground near the coast.

**Exercise 3.** Discuss the main problems in pairs using the following questions.

1. Why is the weather so important for mariners?
2. How can you measure the temperature? Do you know the difference between the scales mentioned above?
3. How does humidity depend on the temperature of the air?
4. What kinds of precipitation do you know? What is the difference between them?
5. What does atmospheric pressure depend on?



6. What is the influence of barometric pressure upon the weather-conditions?
7. Why is it so important to consider the place you are in while predicting the wind's movement?
8. How are the winds named?
9. What is general direction of trade winds?
10. Where do zones of variables exist?
11. What is the cause of breezes?
12. When do sea breezes usually set in?
13. When do land breezes fade?
14. What factors favour development of land and sea breezes?

**Exercise 4.** Find the English equivalents to the following word combinations in the text.

Северное полушарие; принимать во внимание; планирование рейса; прогнозирование погоды; капли; устаревшая шкала; высокое содержание влаги; плотность воздуха; горизонтальное движение; одинаков в численном отношении; хорошая погода; циркуляция ветра; южное полушарие; воздушные потоки; слабое давление; суша; субтропический океанический антициклон; сезонная миграция; достигает максимальной силы; легкий ветер; неравномерное охлаждение; закат; восход; экваториальный фланг; пустыня; особенность тропического побережья.

**Exercise 5.** Jumbled words. Rearrange the letters to make and match them with their definitions.

|                    |  |                                                                                                                                                                          |
|--------------------|--|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1. irab<br>os      |  | 1. The equatorial oceanic regions of calms and light variable winds, accompanied by heavy rains, thunderstorms, and squalls.                                             |
| 2. iwd<br>n        |  | 2. A line on a weather map connecting points of equal atmospheric pressure.                                                                                              |
| 3.<br>odrlm<br>uds |  | 3. Precipitation in the form of spherical or irregular pellets of ice larger than 5 millimeters (0.2 inches) in diameter.                                                |
| 4.<br>ihla         |  | 4. a small indefinite quantity (especially of a liquid)                                                                                                                  |
| 5.<br>treldp<br>d  |  | 5. Wind is merely an amount of air that moves in a horizontal motion over the earth from an area of high barometric pressure towards an area of low barometric pressure. |

**Exercise 6.** Find a word or words in the text that mean the same as the following definitions. They are in the same order as they appear in the text.



- a. difference
- b. course
- c. quantity
- d. to drop
- e. to consist of
- f. agreeing in all details
- g. only
- h. in direction to the movement of the hands of a clock
- i. near
- j. begin; have origin
- k. most frequently
- l. the more usual or prominent
- m. disappear gradually

**Exercise 7.** What do these numbers in the text refer to?

1013 mb; force 3—4; 30°N—40°N; force 4 (occasionally 5 or 6).

**Exercise 8.** Fill in the necessary word:

1. A change of \_\_\_\_\_ in a clockwise direction is indicated by the word "veering".
2. A change in \_\_\_\_\_ is the most significant aspect in weather forecasting.
3. Saturation refers to the maximum amount of \_\_\_\_\_ in air at a specific temperature.
4. Circulation of \_\_\_\_\_ is anti-clockwise around low pressure areas in the Northern hemisphere.
5. The amount of air that moves from one area to the other is referred to as \_\_\_\_\_.
6. \_\_\_\_\_ can be measured in three different scales.
7. \_\_\_\_\_ is a result of a rising mass of cool air.
8. \_\_\_\_\_ is measured in millibars.
9. \_\_\_\_\_ is formed when droplets have become large enough to fall to the ground.
10. A widely-known peculiarity of tropical and sub-tropical coasts is \_\_\_\_\_.

**Exercise 9.** Complete the chart:

| Abbreviation | Direction | Movement         | Adjective | Adjective(for winds) |
|--------------|-----------|------------------|-----------|----------------------|
| S            |           | Southward of     |           |                      |
| NE           | Northeast |                  |           |                      |
| N            |           |                  |           | Northerly            |
| W            |           |                  | Western   |                      |
| SW           |           | Southwestward of |           |                      |

|    |           |  |         |               |
|----|-----------|--|---------|---------------|
| SE | Southeast |  |         |               |
| NW |           |  |         | Northwesterly |
| E  |           |  | Eastern |               |

**Exercise 10.** Read the texts below and complete them with the following words and phrases.

Wind (3), Westerlies, the sun's declination, seasonal pressure variations, Katabatic winds.

### Text A

Air naturally flows from high to low pressure; but the \_\_\_\_\_ thus created does not blow directly across the isobars.

The result is that in the N hemisphere, air flows out of an anticyclone in a clockwise circulation with \_\_\_\_\_ blowing slightly outwards across the isobars at an angle of about  $18^{\circ}$ — $20^{\circ}$ . As the air approaches an area of low pressure it forms an anticlockwise circulation with \_\_\_\_\_ blowing slightly inwards across the isobars, again at an angle of about  $10^{\circ}$ — $20^{\circ}$ .

In the S hemisphere the circulations are reversed with air diverging in an anticlockwise flow around an anticyclone and converging in a clockwise circulation around a depression.

### Text B

The annual movement of \_\_\_\_\_ is followed by corresponding movement of the pressure belts and associated winds. Movement varies in different localities but the pressure systems generally migrate about  $5^{\circ}$ — $8^{\circ}$  in latitude, lagging some 6 to 8 weeks behind the sun.

### Text C

Over large land masses the temperature becomes very high in summer and low in winter; over the oceans the variation is comparatively much less. This leads to relatively high pressure over land in winter and low pressure in summer; the resulting large \_\_\_\_\_ are a dominating feature over continental areas and produce large scale modifications to winds over neighbouring oceans.

### Text D

On the polar sides of the oceanic anticyclones lie zones where the wind direction becomes predominantly W. Unlike the Trade Winds, these winds known as \_\_\_\_\_ are far from permanent. The continual passage of depressions from W to E across these zones causes the wind to vary greatly in both direction and strength. Gales are frequent, especially in winter. Gales are so frequent in the S hemisphere that the zone, S of  $40^{\circ}$ S, has been named the Roaring Forties.

### Text E

When intense radiation, perhaps on clear nights, causes cooling over sloping ground, the colder denser air will flow downhill under the influence of gravity producing a breeze known as a "katabatic" or "downslope" wind.

Where mountains rise close inshore such a \_\_\_\_\_ wind can be a serious hazard to small craft or ships at anchor; onset of the strong offshore wind is often without warning and may arrive as a sudden severe squall. The wind may extend several miles offshore.

**Exercise 11.** Tell what the main idea of the text is; use the following questions for the best answer:

1. How does air flow out in the N hemisphere?
2. What are circulations of air in the S hemisphere?
3. What is annual movement of the sun in declination followed by?
4. When is pressure over land relatively high?
5. What do large seasonal pressure variations result in?
6. What winds are far from permanent?
7. What zone has been named the Roaring Forties?
8. What is "katabatic" wind caused by?

**Exercise 12.** Render the following sentences into English.

1. Циркуляция морского бриза чаще всего происходит в теплые солнечные дни в течение весны и лета, когда температура земли обычно выше, чем температура воды.
2. Конские широты — районы Мирового океана между 30—35° с. ш. и ю. ш., для которых характерны субтропические океанические антициклоны со слабыми ветрами и частыми штилями.
3. Пассаты дуют с востока на запад; в Сев. полушарии они являются северо-восточными ветрами, а в Юж. полушарии — юго-восточными.
4. Над землей давление воздуха уменьшается из-за того, что воздух поднимается только над сушей и не поднимается над морем.
5. Перепад давления образуется из-за того, что давление над сушей меньше, чем над морем.
6. Температуру можно измерять по трем разным шкалам: по шкале Кельвина, Цельсия и шкале Фаренгейта.
7. Из облаков осадки выпадают в виде дождя, мороси, мокрого снега, снега, снежной и ледяной крупы (pellets), ледяного дождя, града и ледяных игл (ice crystals).
8. Метеозависимым (weather-dependent) людям необходимо следить за сводками погоды, прежде всего, как изменится температура и влажность воздуха, понизится ли содержание кислорода. Каждый из этих факторов оказывает влияние на самочувствие человека.

**Exercise 13.** Match the following abbreviations from English Meteocharts.

- |          |            |              |
|----------|------------|--------------|
| 1. WS    | 1. Wind    | 1. Осадки    |
| 2. SUNRS | 2. Drizzle | 2. Депрессия |

|         |                  |                    |
|---------|------------------|--------------------|
| 3. WND  | 3. Precipitation | 3. Ветер           |
| 4. LP   | 4. Wind speed    | 4. Морось          |
| 5. PCPN | 5. Trough        | 5. Низкое давление |
| 6. DRIZ | 6. Low Pressure  | 6. Воздушная масса |
| 7. TROG | 7. Sunrise       | 7. Восход солнца   |
| 8. AMS  | 8. Air mass      | 8. Скорость ветра  |

**Exercise 14.** You are going to make a round-the-world trip. The cruise director arranged a meeting with a meteorologist. Work in groups to prepare questions you want to ask him.

When you are ready, one half of the class will be the interviewers, and the other half will be the meteorologists.

Conduct the interview. Begin by saying, "Mr. Johnes, it's very kind of you to agree to this interview. I wonder if I could ask you a few questions? First..."

**Exercise 15.** Write a short report describing the weather conditions today. Try to mention all the meteorological elements you know. Are the conditions favourable for a sea voyage? Why?

## Unit II. Depressions

### Vocabulary

Read these words and learn them.

Depression – центр низкого давления

Occlusion – окклюзия

Intermittent– прерывистый

Persistent– устойчивый, постоянный

Disturbance – возмущение, волнение

Incursion– наступление, вторжение

Poleward – по направлению к полюсу

Slope – понижение температуры от экватора к полюсам

Discontinuity– разрыв, перерыв

Surface boundary – поверхностная граница

Weather sequence – метеоярд наблюдений

Bank of clouds –гряда облаков

Cirrus– перистые облака

Cumulus– кучевое облако

To decay - спадать, затухать

To trail – идти сзади

To occlude – преграждать, закупоривать

Overcast – покрытый облаками, пасмурный

To obscure – затемнять, затмевать

To veer – менять направление по часовой стрелке (в северном полушарии и против часовой стрелки в южном полушарии)

To back – менять направление против часовой стрелки

To ease – ослабевать

To moderate – стихать, становиться умеренным

To recede – отступать

To overtake – догнать, обрушиваться, овладевать

To override – замещать, вытеснять (о фронтах)

To ascend – подниматься

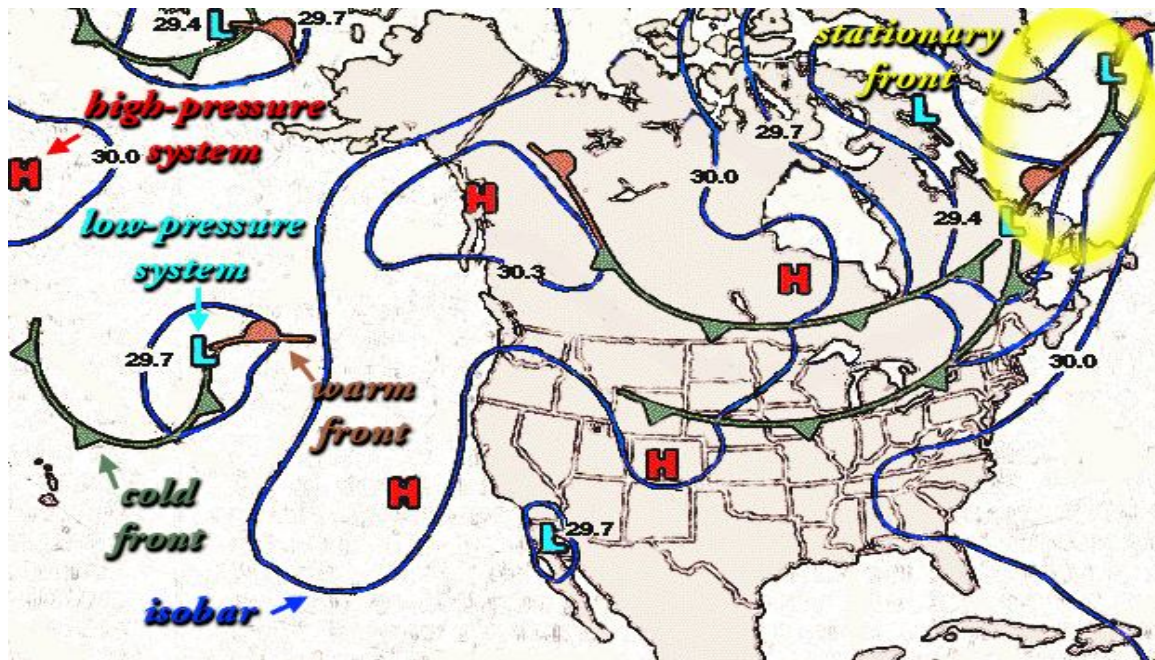
**Exercise 1.** First read the text quickly. Write down one thing about each phenomenon that you can remember. Share what you have written with other students in the class.

**Exercise 2.** Read the text again. Match the following English words with their Russian equivalents.

- |                                 |                                  |
|---------------------------------|----------------------------------|
| 1. circular shape               | 1. штормовой ветер               |
| 2. unsettled weather conditions | 2. система умеренных широт       |
| 3. gale force wind              | 3. повышение давления            |
| 4. middle latitude system       | 4. неустойчивые погодные условия |
| 5. filling                      | 5. различные воздушные массы     |
| 6. boundary zone                | 6. фронтальная прерывистость     |
| 7. contrasting air masses       | 7. округлая форма                |
| 8. frontal discontinuity        | 8. пограничная зона              |
| 9. showery conditions           | 9. условия ливневых осадков      |
| 10. trail                       | 10. преграждать                  |
| 11. cirrus                      | 11. идти сзади                   |
| 12. slope                       | 12. затухать                     |
| 13. occlude                     | 13. постоянный                   |
| 14. decay                       | 14. понижение температуры        |
| 15. persistent                  | 15. перистые облака              |



Chart 1.



Look at the **chart 1**. Pay attention to the charted symbols and abbreviations.

### Text Depressions

A depression (or Low) appears on a meteorological chart as a series of isobars roughly circular or oval in shape around the center where pressure is lowest. Depressions are frequent in middle latitudes and give unsettled weather conditions; they are very often, though not always, accompanied by strong winds. They vary greatly in size from very small features to very large circulations over 2000 miles in diameter; central pressure in extreme cases may be as low as 950 mb/h Pa. The extent and power of a deep and large depression cannot only produce gale force winds but raise very high, persistent and dangerous sea. In the N hemisphere the wind circulation around a depression is anticlockwise and slightly inwards across the isobars towards the low pressure; in the S hemisphere the circulation is clockwise.

Depression may move in any direction though most middle latitude systems move in a generally E direction. There is no normal speed movement. A small developing and perhaps very attractive depression can travel very quickly indeed, possibly 30—60 Kn.; but as a depression deepens into a large system it usually moves much more slowly and especially so when decaying and filling.

### Fronts

Depressions often originate on a front which is the boundary zone between two contrasting air masses. In middle latitudes it is usual for air moving from the Polar Regions to encounter warm air from the subtropics moving in the opposite direction. At the frontal boundary where the two meet there is a tendency for small

disturbances to develop on the front where the warm air makes incursions into the cold air mass and in vice versa; the warm air rises over the cold air.

### **Warm front**

When the air in the warm sector of the depression meets the denser cold air on the frontal boundary, the warm air overrides it; extensive cloud and precipitation covering a wide area result as the warm air ascends.

### **Cold front**

The cold air behind the front overtakes the warm air of the warm sector and undercuts it, causing the less dense warm air to rise; often quite suddenly so that a belt of large cumulus or cumulonimbus cloud results.

### **Occlusion**

In a frontal system the cold front generally moves faster than the warm front and eventually overtakes it, thereby closing or occluding the warm sector of the depression. Thereafter the warm front may displace the warm front effectively leaving a surface cold front with mixed characteristics of both warm and cold fronts: a "cold occlusion". Alternatively when the air behind the cold front is less dense than the air ahead of the warm front, the cold front will rise up the warm frontal discontinuity effectively leaving only a warm front at the surface but again with mixed characteristics of both warm and cold fronts: a "warm occlusion".

In both cases the air in the warm sector is lifted from the surface and the depression subsequently becomes less active and starts to fill.

### **Weather**

The approach of a depression is indicated by a falling barometer.

If a depression is approaching from the W and passing on the poleward side of the observer high cirrus clouds appear in the W and the wind shifts to the SW or S in the N hemisphere or to the NW or N in the S hemisphere. The cloud layer increases to give overcast skies which gradually obscure the sun; as the cloud becomes progressively lower rain, or snow, at first intermittent, becomes continuous and heavier. As the warm front passes, the wind veers in the N hemisphere, or backs in the S hemisphere, the fall of the barometer eases and the temperature rises as the rain stops or moderates.

The arrival of the cold front is marked by the approach from the W of a thick bank of cloud as the front passes, a further veer of the wind to W or NW in the N hemisphere, or backing to W or SW in the S hemisphere, may be accompanied by a squall. A belt of heavy rain, hail or snow precedes the arrival of cooler, clearer air as the barometer begins to rise.

As the depression recedes, showery conditions may develop; a second cold front similar in character to the first one sometimes marks the arrival of yet colder air.

When the depression is occluded the weather sequence ahead of the front is similar to the approach of a warm front; but as the front passes, a short period



heavy rain may occur as the cold air behind the front arrives, and the wind veers in the N hemisphere, or backs in the S hemisphere.

**Exercise 3.** How do you understand the following word combinations? Explain them in English.

1. In extreme cases;
2. A deep and large depression;
3. Persistent and dangerous sea;
4. An attractive depression;
5. To originate;
6. Contrasting air masses;
7. Extensive cloud;
8. To undercut the warm air sector;
9. To have mixed characteristics;
10. Subsequently.

**Exercise 4.** Find the English equivalents to the following word combinations in the text.

Метеорологическая карта; система изобар; овальная форма; создавать неустойчивые погодные условия; в крайних случаях; обычная скорость движения; углубляться в систему; сталкиваться с теплым воздухом; небольшое волнение; вторгаться в холодные воздушные массы; широкий пояс дождевокучевых облаков; преграждать теплый сектор депрессии; впоследствии; в ином случае; подниматься с поверхности; последовательно; начинать повышаться (о давлении); пасмурное небо; закрывать солнце постепенно; умеренный дождь; обширная гряда облаков; сопровождаться порывистым ветром с дождем и снегом; ряд метео наблюдений; ветер дует против часовой стрелки.

**Exercise 5.** Discuss the main problems using the following questions.

1. What is depression? Where can it occur?
2. Does depression vary in size?
3. What is wind circulation around depression in the N hemisphere?
4. What is wind circulation around depression in the S hemisphere?
5. What direction does depression move mainly?
6. What is the speed of depression?
7. Where does depression originate?
8. What is the warm front?
9. What is the cold front?
10. What is the occlusion?
11. Is it possible to indicate the approach of depression?

12. How do the weather conditions change if depression approaches from the W?
13. How do the weather conditions change if depression recedes?
14. How do the weather conditions change if depression is occluded?

**Exercise 6.** Read the text again. Underline and correct the wrong information if necessary.

1. Depressions are rare in middle latitudes and give rather settled weather conditions.
2. In the S hemisphere the wind circulation around a depression is anticlockwise.
3. Depressions move only in E direction.
4. A small developing depression travels very quickly.
5. The cold air rises over the warm air.
6. Cumulonimbus cloud is the first sign of the approaching warm front.
7. In a frontal system the cold front generally moves slower than the warm front.
8. In both cases of a "cold occlusion" and "warm occlusion" the air in the warm sector is lifted from the surface and the depression becomes less active.
9. As the warm front passes, the wind backs in the N hemisphere, and the temperature falls as the rain stops.
10. The arrival of the cold front is marked by the approach from the W of a thick bank of cloud.
11. A belt of heavy rain or snow precedes the arrival of warmer air, as the barometer begins to fall.

**Exercise 7.** Complete the charts with the different parts of speech. The missing words are all from the above text.

| Verb      | Noun       | Verb        | Noun       |
|-----------|------------|-------------|------------|
|           | appearance |             | indicator  |
| shape     |            |             | increase   |
| circulate |            |             | moderation |
|           | production |             | recession  |
| direct    |            |             | occurrence |
|           | depth      |             | arrival    |
|           | decay      | observe     |            |
|           | origin     | approach    |            |
| tend      |            | lay         |            |
| disturb   |            | mark        |            |
|           | ascent     |             | result     |
|           | precedence |             | tail       |
| warn      |            |             |            |
| Noun      | Adjective  | Noun        | Adjective  |
| circle    |            | persistence |            |

|           |  |           |  |
|-----------|--|-----------|--|
| frequency |  | extension |  |
| strength  |  | density   |  |
| extremity |  | activity  |  |

**Exercise 8.** Give three forms of the verbs (if they have) with a translation.

To override, to veer, to overcast, to back, to ascend, to overtake, to trail, to undercut, to rise, to obscure, to recede, to ease, to become, to moderate, to begin, to appear.

**Exercise 9.** Put the words in the right order and translate the sentences.

1. depth, in, vary, Depressions, much, size, and.
2. Depression, knots, as, may, fast, move, as, 60.
3. last, Lows, normally, around, days, 4, to, 6, and, filling, down, slow, when.
4. A, a, barometer, the, indicates, of, approach, depression, falling.
5. are, in, Depressions, at, frequent, latitudes, sea, middle.
6. are, most, Lows, responsible, unsettled, for, weather.
7. are, all, strong, depressions, accompanied, by, Not, winds.
8. One, depression, only, be, in, may, 100, over, miles, diameter, and, another, 2,000.

**Exercise 10.** Put the verbs in brackets in the correct tense form. Translate them.

1. A depression ... (to appear) on a synoptic chart as a series of isobars roughly circular or oval in shape, surrounding an area of low pressure.
2. Oceanic depressions ... (to have usually) one or more fronts extending from their centres.
3. These ... (to be) intense depressions occurring in tropical latitudes accompanied by high winds and heavy seas.
4. If the wedge... (to move) into an area of warmer air, the front ... (to be called) a cold front.
5. If the wedge ... (to retreat) and warmer air ... (to move) into an area previously occupied by cool air, the front ... (to be termed) a warm front.
6. Cold fronts ... (bring usually) cooler weather, clearing skies, and a sharp change in wind direction.
7. Because cold fronts ... (to move) faster than warm fronts, they... (can, to catch up to) and ... (to overtake) their related warm front. When they ... (to do), an occluded front ... (to be formed).
8. In the rain area there... (to be) often a long period of continuous rain and unpleasant weather with low cloud.
9. If the depression ... (to be not occluded), after a period of continuous rain or snow there ... (to be) a veer (backing) of the wind at the warm front.

10. In the N hemisphere, if a depression ... (to approach) from the W and ... (to pass) to the N of the ship, clouds ... (to appear) on the W horizon, the wind ... (to shift) to a SW or S direction and ... (to freshen), the cloud layer gradually ... (to lower) and finally drizzle, rain or snow ... (to begin).

**Exercise 11.** Rewrite the sentences using the word in italics in a different word class.

Ex. Depressions may **move** in any direction.

The **movement** of depressions may be in any direction.

a) A depression **appears** on a meteorological chart as a series of isobars.

b) Depressions may be very large **circulations** over 2000 miles in diameter.

c) Middle latitude systems move in a generally E **direction**.

d) The **decay** of a depression results in slow movement.

e) Depressions **originate** on a front.

f) **Extensive** cloud and precipitation result as the warm air **ascends**.

g) The "tail" of a cold front is the place of **origin** for further wave depressions.

h) **The air** behind the cold front may be less dense than the air ahead of the warm front.

**Exercise 12.** Match the following abbreviations from English Meteocharts. Translate them.

CLD, G\GW, DNS, TD, OCLN, FNT, SHWR, R, MPH, SPLL, TMP, VSBY, M.

**Exercise 13.** Each student writes any sentence about depressions on a sheet of paper and passes his paper to the student on his left. The second student reads and checks the sentence (sentences) and adds a new one then passes the paper on. When you get your paper back, check and rearrange the sentences to get a logical text. If necessary add link words and/or more sentences. Swap your text with a partner to check the output.

### Unit III. Tropical storms. Fog. Cloudiness.

#### Vocabulary

Read these words and learn them.

Revolving storm – вращающийся шторм

Confused sea – нерегулярное волнение на море (9 баллов)

High sea – сильное волнение (6 баллов)

Restricted water – стесненные воды

Violent – сильный, интенсивный

Adequate – соответствующий

Well-found – хорошо подготовленный

Erratic – неустойчивый

Precursory – предвещающий

To recur – повторяться, происходить вновь

To preclude – предотвращать

To enhance – увеличивать, усиливать

To dissipate – рассеиваться

To recurve – загибаться назад, в обратном направлении

Eye – "Глаз бури"

Thick weather – туманная погода с плохой видимостью

Dew point – точка росы, точка таяния

Advection fog – адвективный туман

Minute – мелкий, мельчайший

Altostratus – высокослоистые облака

Scud – разорванно-слоистые облака

Stratus – слоистые облака

Cirrostratus – перисто-слоистые облака

Cirrocumulus – перисто-кучевые облака

Alto cumulus – высококучевые облака

Nimbostratus – слоисто-дождевые облака

Stratocumulus – слоисто-кучевые облака

Cumulonimbus – кучево-дождевые облака

**Exercise 1.** Check your ideas with the text and discuss the problems.

1. Where do tropical storms develop?
2. When danger of tropical storms is especially enhanced?
3. What weather do anticyclones give?
4. What is fog caused by?
5. What is the main type of fog experienced at sea?
6. Where does "frost smoke" occur?
7. What is the cause of frontal fog?
8. Why is radiation fog found not far from the shore?

## Text

### Tropical storms. Fog. Cloudiness

#### Tropical storms

Tropical storms are intense depressions which develop in tropical latitudes; they are often the cause of very high winds and heavy seas. Although the pressure at the center of a tropical storm is comparable to that of an intense middle latitude depression, the diameter of a tropical storm is much smaller (typically some 500 miles compared with 1500 miles) and thus the related pressure gradients and the wind speed are correspondingly greater. The wind blows around the center of a tropical storm in a spiral flow inwards, anticlockwise in the N hemisphere and clockwise in the S hemisphere: hence the occasional alternative name "revolving storm".

Within the circulation of a tropical storm the wind is often very violent and the seas are high and confused; considerable damage may be done even to large and well-found ships. The danger is especially enhanced when ships are caught in restricted waters without adequate room to maneuver and early action may be essential to preclude such a situation arising.

Tracks followed are very variable in, all areas and individual tracks may be quite erratic. When a storm moves inland it weakens and eventually dissipates; but if it should reemerge to follow an Ocean track again it may reintensify.

The speed of storms is usually about 10 kn in their early stages increasing slightly with latitude but seldom exceeding 15 kn before recurring. A speed of 20—25 kn is usual after recurring though speeds of over 40 kn have been recorded. Radar may give warning of a storm within about 100 miles.

#### Anticyclones

Over the E sides of the oceans the movement of anticyclones (or Highs) is generally slow and erratic and they may remain stationary for several days giving settled weather. The pressure gradient is usually slight, the winds light to moderate and the weather are often or partly cloudy; but in winter and in temperate latitudes skies may become overcast to give gloomy conditions. Precipitation, even a drizzle, is uncommon near the middle of an anticyclone. Over the W parts of the oceans anticyclones are more likely to move quickly and consequently, the associated weather is more changeable. Movement is generally towards the E.

**Fog** is a cloud that touches the ground. Dense fog will reduce visibility considerably and is referred to as "thick weather".

Fog is caused by the cooling of air to a temperature (known as the "dew point") at which it becomes saturated by the water vapour which is present within it. Condensation of the water vapour into minute water droplets produces fog; the type of fog depends on the means by which the air is cooled.



### Sea or advection fog

When warm moist air flows over a relatively cold sea surface which cools it below its dew point, sea or advection fog is formed. This is the main type of fog experienced at sea; it may form and persist with moderate or even strong winds. It is often shallow so that mastsheads of ship may protrude above it; and at times its base is a few feet above sea level with a clear layer below the fog.

### Frontal fog

On a warm front or occlusion fog may occur especially if the temperature of the air in advance of the front is very low. The fog is due to the mixing of the warm and cold air on the two sides of the front.

### Arctic sea smoke

Also known as "frost smoke", arctic sea smoke occurs chiefly in high latitudes and is produced when very cold air blows over a relatively warm sea surface.

### Radiation fog

Over low-lying land on clear nights (conditions for maximum radiation), radiation fog forms, especially during winter months. Occasionally it drifts out to sea but is found no further than 10—15 miles offshore as the sea surface temperature is relatively high which causes the water droplets to evaporate.

### Cloudiness

Clouds are continually changing and appear in a variety of forms. It is possible however to define a limited number of characteristic forms, observed all over world, into which clouds can be broadly grouped.

| Level                                            | Designation | Type           | Abbreviation |
|--------------------------------------------------|-------------|----------------|--------------|
| High<br>(base usually > 20 000 ft)               | CH          | Cirrus         | Ci           |
|                                                  |             | Cirrocumulus   | Cc           |
|                                                  |             | Cirrostratus   | Cs           |
| Medium<br>(base usually > 6 500 and < 20 000 ft) | CM          | Alto cumulus   | Ac           |
|                                                  |             | Alto stratus   | As           |
|                                                  |             | Nimbostratus   | Ns           |
| Low<br>(base usually < 6 500 ft)                 | CL          | Strato cumulus | Sc           |
|                                                  |             | Stratus        | St           |
|                                                  |             | Cumulus        | Cu           |
|                                                  |             | Cumulonimbus   | Cb           |

**Exercise 2.** Find the English equivalents to the following word combinations in the text.

Глубокая депрессия; сильный ветер; глубокая депрессия средних широт; спиралевидный поток; отсюда (следовательно); значительное повреждение; хорошо-оборудованное судно; соответствующее пространство; появляться заново (на поверхности); усиливаться снова; устойчивая погода; переменная

облачность; умеренные широты; пасмурные погодные условия; мелкие водяные капли; теплый влажный воздух; относительно холодная поверхность моря; выступать (выдаваться над поверхностью); арктический туман под полярной; низина; обозначение (в таблице).

**Exercise 3.** Match the following verbs with their synonyms.

- |                |                     |
|----------------|---------------------|
| 1. recur       | 1. strengthen again |
| 2. dissipate   | 2. overhang         |
| 3. reemerge    | 3. come again       |
| 4. produce     | 4. clear out        |
| 5. occur       | 5. cause            |
| 6. enhance     | 6. arise again      |
| 7. protrude    | 7. happen           |
| 8. reintensify | 8. increase         |

**Exercise 4.** Jumbled words. Rearrange the letters to make and match them with their definitions.

|                 |  |                                                                                                                                                                                                                                                                          |
|-----------------|--|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1. uirscr       |  | 1. This middle cloud is composed of water droplets, and sometimes ice crystals. White to gray in color, it can sometimes obscure the sun or the moon. It is a good indicator of precipitation, as it often precedes a storm system. Virga often falls from these clouds. |
| 2. oltaatrssut  |  | 2. This cloud is characterized by thin, wispy strands. It generally appears white or light grey in color.                                                                                                                                                                |
| 3. obminstuatrs |  | 3. This cloud is also called a thunderstorm cloud, it is frequently accompanied by heavy showers, lightning, thunder, and sometimes hail, tornadoes or strong, gusty winds.                                                                                              |
| 4. sumoluinbmuc |  | 4. This cloud is characterized by a formless cloud layer which exhibits a combination of rain or snow.                                                                                                                                                                   |

**Exercise 5.** Find in the text the terms which mean.

1. An organized low pressure system in the tropics with wind speeds between 38 and 74 mph.
2. A large body of air in which the atmospheric pressure is higher than the pressure in the surrounding air. The winds blow clockwise around an anticyclone in the Northern Hemisphere.

3. It is formed over the ocean as a result of processes when air over a warm water surface is transported over a colder water surface, resulting in a cooling of the lower layer of air below its dew point.
4. The temperature to which the air must be cooled for water vapor to condense and form fog or clouds.
5. Evaporation (steam) fog produced above a surface of open water within Arctic ice when the air is stable and relatively cold.

**Exercise 6.** Are the following statements true or false? Correct the false ones.

1. The diameter of a tropical storm is 1500 miles.
2. The danger of tropical storms decreases when ships are caught in restricted waters.
3. Individual tracks of tropical storms may be quite erratic.
4. Radar may give warning of a storm within about 100 miles.
5. Anticyclones remain stationary for several hours giving settled weather.
6. Drizzle is common near the middle of an anticyclone.
7. Sea fog is often shallow.
8. Frontal fog is due to the mixing of the warm and cold air on the two sides of the front.
9. Radiation fog forms especially during summer months.
10. Clouds have an unlimited number of characteristic forms.

**Exercise 7.** What do these numbers in the text refer to?

500 miles, 10 kn-15kn, 10—15 miles, < 6 500 ft, < 20 000 ft, > 20 000 ft, 100 miles, 20—25 kn, 40kn.

**Exercise 8.** Here are some answers. Compose the questions.

1. What \_\_\_\_\_ alternative \_\_\_\_\_? "Revolving storm".
2. What \_\_\_\_\_? About 10 kn.
3. What \_\_\_\_\_? "Thick weather".
4. What \_\_\_\_\_? Condensation of water vapours into minute water droplets.
5. What distance \_\_\_\_\_? 10—15 miles offshore.
7. Where \_\_\_\_\_ "frost smoke" \_\_\_\_\_? In high latitudes.
8. What direction \_\_\_\_\_? Anticlockwise in the N hemisphere.
9. What \_\_\_\_\_? Frontal fog.
10. What \_\_\_\_\_? Ns.

**Exercise 9.** Read the texts below and translate the words in italics into English.

### Text A

**Тропические шторма** develop only over **океанами**, and origination is especially frequent near the seasonal location of the **Экваториальной Депрессии**. In the **северном полушарии** storms form mostly in the **поясе** 5°—15°N early and late in **сезон штормов**, and between 10°N at the height of the seasons; in the **Североатлантическом океане** storm formation between 25°N and 30°N is fairly common. In the **южном полушарии** most storms develop between 5°S and 18°S. Those which **влияют** the W Pacific, S Indian and N Atlantic Oceans are usually first reported in the **восточной части** of these Oceans; there are **исключения** such as in the N Atlantic Ocean during **августа** and September when an occasional storm **возникает** near Archipelago old Cabot Verde.

### Text B

SOLAS 1974 **утверждает** that when a ship suspects the existence of or is in **поблизости** a tropical storm **капитан** must **передать информацию** by all means **в его распоряжении** to ships in the vicinity and to the nearest **береговую радиостанцию** or **сигнальный пост** with which he can communicate. A report is similarly required if a ship should encounter winds of force 10 or **свыше** of which **никаких предупреждений** has been received.

### Text C

**Штормовое предупреждение** of the position, **интенсивности** and **предполагаемом передвижении** of each storms are broadcast **на частоте** and **с равными интервалами**. The following terms are **общеприняты** to describe tropical circulations at various **стадиях** of intensity:

|                               |                               |
|-------------------------------|-------------------------------|
| Tropical Depression           | <b>Сила ветра 7 or меньше</b> |
| Tropical Storm                | <b>Сила ветра 8 and 9</b>     |
| <b>Сильный Tropical Storm</b> | <b>Сила ветра 10 and 11</b>   |

**Exercise 10.** Say the following sentences in English.

- Перисто-слоистые и перисто-кучевые облака состоят из ледяных кристаллов.
- В мире ежегодно наблюдается около 80 тропических циклонов.
- Облака возникают в результате конденсации водяного пара, содержащегося в воздухе.
- В северном полушарии воздух в антициклоне движется по часовой стрелке, в южном полушарии - против часовой стрелки.
- Туман - это атмосферное явление, которое означает скопление в воздухе мельчайших продуктов конденсации водяного пара.
- Адвективные туманы образуются вследствие охлаждения тёплого влажного воздуха при его движении над более холодной поверхностью суши или воды.

7. Для антициклона характерно преобладание ясной или малооблачной погоды.
8. Обычно радиационный туман возникает ночью в условиях антициклона при безоблачной погоде и лёгком бризе.
9. Ураган Катрина, который полностью затопил и разрушил Новый Орлеан, был самым мощным и опасным тропическим штормом в истории Америки.
10. Фронтальные туманы образуются вблизи атмосферных фронтов и перемещаются вместе с ними.

**Exercise 11.** Match the following abbreviations from the English Meteocharts. Translate them.

|         |                   |                           |
|---------|-------------------|---------------------------|
| 1.DWPNT | 1. Condition      | 1. Точка росы             |
| 2. FLG  | 2. Tropical storm | 2. Безоблачное небо       |
| 3.SKC   | 3. Fog            | 3.Штормовой ветер         |
| 4. F    | 4.Sky clear       | 4.Тропический шторм       |
| 5.TS    | 5. Dew point      | 5. Условие                |
| 6. CND  | 6. Falling        | 6. Туман                  |
| 7.SW    | 7. Knots          | 7. Узлы                   |
| 8. KTS  | 8. Stormy wind    | 8. Понижение              |
| 9. L    | 9. Centre         | 9. Циклон                 |
| 10.CNTR | 10.Low            | 10. Центр,<br>центральный |

**Exercise 12.** Give the abbreviations to the following words from the English Meteocharts.

Increase, millibars, partly, Northern hemisphere, typhoon, snow, during, little, around, till, period, movement, forming, in vicinity, higher, across, decreasing, interrupted, likely, mile, surface, station, toward, wide, outlook, region, slit.

**Exercise 13.** Give the summary of the text “Tropical storms. Fog. Cloudiness”, using the following expressions:

- a) The text is headlined....It is about.....
- b) The text deals with.....
- c) The aim of the text is to provide some information on....
- d) The text describes....Further it is said that....
- e) In conclusion....

## ПРИЛОЖЕНИЕ А

### Сокращения, применяемые на картах погоды иностранных государств

|       |              |                              |
|-------|--------------|------------------------------|
| ABT   | About        | Около                        |
| ABV   | Above        | Выше                         |
| ACPY  | Accompany    | Сопровождать                 |
| ACRS  | Across       | Через                        |
| ADV N | Advance      | Продвижение                  |
| AFDK  | After dark   | После наступления темноты    |
| AFTN  | Afternoon    | Время после полудня          |
| AMS   | Air mass     | Воздушные массы              |
| AMT   | Amount       | Количество                   |
| ARND  | Around       | Вокруг, около                |
| AT    |              | Координаты                   |
| BCM   | Become       | Становиться                  |
| BCMG  | Becoming     | Становящийся                 |
| BGN   | Begin        | Начинать(ся)                 |
| BHND  | Behind       | Позади                       |
| BLO   | Below        | Ниже                         |
| BRKN  | Broken       | С разрывами                  |
| BTN   | Between      | Между                        |
| C\CLR | Clear        | Ясный \ небольшая облачность |
| CHG   | Changing     | Изменение                    |
| CLD   | Cloud        | Облако                       |
| CLRG  | Clearing     | Прояснение                   |
| CMNG  | Coming       | Начало, начинающийся         |
| CND   | Condition    | Условие                      |
| CNTR  | Centre       | Центр, центральный           |
| CONTN | Continuation | Продолжение                  |
| CSTL  | Coastal      | Прибрежный, береговой        |
| DCR   | Decrease     | Уменьшаться                  |
| DCRG  | Decreasing   | Уменьшение, понижающийся     |
| DMSH  | Diminish     | Уменьшать(ся)                |
| DNS   | Dense        | Густой, плотный              |
| DPT   | Development  | Усиление, углубление         |
| DRFT  | Drift        | Дрейф, перемещение           |
| DRIZ  | Drizzle      | Морось                       |



|         |                        |                                 |
|---------|------------------------|---------------------------------|
| DSIPT   | Dissipate              | Рассеивать(ся)                  |
| DSNT    | Distant                | Отдаленный                      |
| DST     | Destruction            | Разрушение                      |
| DT      | Daytime                | Дневное время                   |
| DURG    | During                 | В течение                       |
| DVLP    | Development            | Развитие                        |
| DWPNT   | Dew point              | Точка росы                      |
| E       | Extreme; east; eastern | Чрезвычайный; восток, восточный |
| ENDG    | Ending                 | Окончание, оканчивающийся       |
| ENTR    | Entire                 | Сплошной                        |
| F       | Fog, Fahrenheit        | Туман, по Фаренгейту            |
| FC      | Forecast centre        | Метеорологический центр         |
| FCST    | Forecast               | Прогноз                         |
| FLD     | Field                  | Поле                            |
| FLG     | Falling                | Падение, понижающийся           |
| FLRY    | Flurry                 | Шквал                           |
| FLW     | Follow                 | Следовать                       |
| FM      | From                   | От                              |
| FNT     | Front                  | Фронт                           |
| FORNN   | Forenoon               | Предполуденное время            |
| FQT     | Frequent               | Частный                         |
| FR      | Rout forecast          | Маршрутный прогноз              |
| FRMG    | Forming                | Формирование, формирующийся     |
| FROPA   | Front passage          | Прохождение фронта              |
| FRST    | Frost                  | Мороз                           |
| FRZ     | Freeze                 | Замерзание, замерзать           |
| FZR     | Freezing rain          | Дождь с образованием гололеда   |
| G\GW    | Gale\ gale wind        | Штормовой ветер                 |
| GNDFG   | Ground fog             | Поземный туман                  |
| GRDL    | Gradual                | Постепенный                     |
| GRADU   | Graduation             | Постепенное изменение           |
| GRP     | Group                  | Группа                          |
| H       | High; hail             | Антициклон; град                |
| HBRKN   | High broken            | Высокая облачность с разрывами  |
| HIER    | Higher                 | Выше                            |
| HND     | Hundred                | Сто                             |
| HOVC    | High overcast          | Закрыто высокими облаками       |
| HRZN    | Horizon                | Горизонт                        |
| HUHIPER | Hurricane report       | Сообщение об урагане            |

|        |                        |                                        |
|--------|------------------------|----------------------------------------|
| HURCN  | Hurricane              | Ураган, шторм, буря                    |
| HZY    | Hazy                   | Во мгле                                |
| I      | Ice                    | Лед                                    |
| ICG    | Icing                  | Обледенение                            |
| ICGIP  | Icing in precipitation | Обледенение в осадках                  |
| INCR   | Increase               | Увеличение                             |
| INDFT  | Indefinite             | Неопределенный                         |
| INT    | Interrupted            | Прерывающийся, периодический           |
| INTMT  | Intermittent           | С перерывами                           |
| INTS   | Intensive              | Сильный, интенсивный                   |
| INVIC  | In vicinity            | Вблизи, в окрестности                  |
| IPV    | Improve                | Улучшать (ся)                          |
| KTS    | Knots                  | Узлы                                   |
| L      | Low                    | Циклон                                 |
| LATD   | Latitude               | Широта                                 |
| LCL    | Local                  | Местный                                |
| LCLY   | Locally                | Местами                                |
| LGT    | Light                  | Легкий                                 |
| LKLY   | Likely                 | Вероятный                              |
| LONG   | Longitude              | Долгота                                |
| LP     | Low pressure           | Низкое давление                        |
| LTL    | Little                 | Незначительный                         |
| LTLCG  | Little change          | Незначительное изменение               |
| LVL    | Level                  | Уровень                                |
| LWR    | Lower                  | Снижать                                |
| LWROVC | Lower overcast         | Закрыто низкими облаками               |
| LYR    | Layer                  | Слой                                   |
| M      | Message                | Сообщение                              |
| MAX    | Maximum                | Максимальный                           |
| MBS    | Millibars              | Миллибары                              |
| MDT    | Moderate               | Умеренный                              |
| METEOR | Meteorology            | Служба погоды                          |
| METEOS | Meteorological station | Метеостанция                           |
| MI     | Mile                   | Миля английская (1609 м)               |
| MID    | Middle                 | Середина, средний                      |
| MIDN   | Midnight               | Полночь                                |
| MIN    | Minimal                | Минимальный                            |
| MLD    | Mild                   | Слабый                                 |
| MOR    | Mean optical range     | Средняя оптическая дальность видимости |

|       |                       |                                  |
|-------|-----------------------|----------------------------------|
| MOV   | Movement              | Движение                         |
| Mpair | Maritime polar air    | Морской полярный воздух          |
| MPH   | Miles per hour        | Миль в час                       |
| MRNG  | Morning               | Утро                             |
| MSL   | Mean sea level        | Средний уровень моря             |
| MSTLY | Mostly                | Большей частью                   |
| MTair | Maritime tropical air | Морской тропический воздух       |
| N     | North                 | Север, северный                  |
| NGT   | Night                 | Ночь                             |
| NE    | North-east            | Северо-восток                    |
| NH    | Northern hemisphere   | Северное полушарие               |
| NLat  | Northern latitude     | Северная широта                  |
| NLM   | Nautical mile         | Морская миля (1852 м)            |
| NMRS  | Numerous              | Многочисленный                   |
| NRN   | Northern              | Северный                         |
| NW    | North-west            | Северо-запад                     |
| OBS   | Observation, observe  | Наблюдение, наблюдать            |
| OBSC  | Obscured              | Неясный                          |
| OCC   | Occasional clouds     | Временами наблюдаемая облачность |
| OCFNT | Occlusion front       | Фронт окклюзий                   |
| OCLN  | Occlusion             | Окклюзия                         |
| OCN   | Occasion              | Случай                           |
| OTLK  | Outlook               | Ориентировочный прогноз          |
| OVC   | Overcast              | Сплошная облачность              |
| OVR   | Over                  | Над                              |
| OWS   | Ocean weather station | Океаническая станция погоды      |
| Pc    | Polar continental     | Континентальный полярный воздух  |
| PCPN  | Precipitations        | осадки                           |
| PICO  |                       | Не наблюдается из-за облачности  |
| PIRA  |                       | Не наблюдается из-за дождя       |
| PRD   | Period                | Период                           |
| PRES  | Pressure              | Давление                         |
| PRTG  | Protruding            | Простирающийся                   |
| PSBL  | Possible              | Возможный                        |
| PSN   | Position              | Положение                        |
| PTLY  | Partly                | Отчасти                          |
| PTN   | Portion               | Часть                            |
| PVL   | Prevail               | Преобладать                      |
| QUAD  | Quadrant              | Квадрат                          |
| R     | Rain                  | Дождь                            |

|          |                         |                                    |
|----------|-------------------------|------------------------------------|
| RCH      | Reach                   | Достигать                          |
| RDG      | Ridge                   | Гребень                            |
| REFRMG   | Reforming               | Вновь формирующийся                |
| RGN      | Region                  | Район, область, слой, регион       |
| RMN      | Remain                  | Оставаться                         |
| RMRK     | Remark                  | Замечание, примечание              |
| RPDLY    | Rapidly                 | Быстро                             |
| S        | Snow; snowfall; south   | Снег, снегопад, юг                 |
| SCTD     | Scattered               | Рассеянный                         |
| SE       | South-east              | Юго-восток                         |
| SFC      | Surface                 | Поверхность                        |
| SHFT     | Shift                   | Сдвиг                              |
| SHLW     | Shallow                 | Мелкий                             |
| SHWR     | Shower                  | Ливень                             |
| SKC      | Sky clear               | Безоблачное небо                   |
| SLat     | Southern latitude       | Южная широта                       |
| SLGTLY   | Slightly                | Незначительно, слабо               |
| SLOWLY   | Slowly                  | Медленно                           |
| SLT      | Slit                    | Мокрый снег, снег с дождем, крупа  |
| SMK      | Smoke                   | Дым                                |
| SMWHAT   | Somewhat                | Отчасти                            |
| SNW      | Snow                    | Снег                               |
| SPRDG    | Spreading               | Распространяющийся                 |
| SQAL     | Squall                  | Предупреждение о шквале            |
| SQLL     | Squall                  | Шквал                              |
| SQLNS    | Squall lines            | Линии шквалов                      |
| STA/STNY | Stationary              | Стационарный                       |
| STM      | Storm                   | Шторм                              |
| STN      | Station                 | Станция                            |
| STS      | Strong tropical storm   | Сильный тропический шторм          |
| SUNRS    | Sunrise                 | Восход солнца                      |
| SVR      | Severe                  | Жесткий, сильный                   |
| SVRL     | Several                 | Несколько                          |
| SW       | Stormy wind; south-west | Штормовой ветер (48 уз); юго-запад |
| SYN      | Synopsis                | Обзор (метеосводка)                |
| TD       | Tropical depression     | Тропическая депрессия              |
| THD      | Thunderstorm            | Гроза                              |
| THN      | Thin                    | Тонкий                             |
| THRUG    | Through                 | Через                              |

|       |                     |                               |
|-------|---------------------|-------------------------------|
| THSD  | Thousand            | Тысяча                        |
| THTN  | Threaten            | Угрожать                      |
| TIL   | Till                | До                            |
| TMP   | Temperature         | Температура                   |
| TNFT  | Tonight             | Сегодня вечером               |
| TROG  | Trough              | Ложбина                       |
| TS    | Tropical storm      | Тропический шторм             |
| TSHWR | Thunder shower      | Грозовой ливень               |
| TSTM  | Thunderstorm        | Гроза                         |
| TW    | Typhoon wind        | Ураганный ветер (более 64 уз) |
| TWD   | Toward              | В направлении                 |
| TY    | Typhoon             | Тайфун                        |
| UNK   | Unknown             | Неизвестный                   |
| VAR   | Variable            | Переменный                    |
| VEL   | Velocity            | Скорость                      |
| VSБ   | Visible             | Видимый                       |
| VSBY  | Visibility          | Видимость                     |
| W     | Warning; wind; west | Предупреждение, ветер, запад  |
| WD    | Wide                | Широкий                       |
| WK    | Weak                | Слабый                        |
| WKN   | Weaken              | Ослабевать                    |
| WL    | Will                | Будет                         |
| WND   | Wind                | Ветер                         |
| WRM   | Warm                | Теплый                        |
| WRN   | Western             | Западный                      |
| WS    | Wind speed          | Скорость ветра                |
| XTD   | Extended            | Простирающийся                |
| XTRM  | Extreme             | Крайний                       |

## БИБЛИОГРАФИЧЕСКИЙ СПИСОК

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