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Tabular values give 12-hour travel of the (postulated) wind speed, in tenths of degrees of longitude measured at the given latitude Φ_1, as a function of the latitude Φ_1 and (2) the pressure gradient in mils per 5° latitude spacing centered at Φ_1 or (2) the pressure/grad gradient in 10's of gph. per 5° latitude spacing centered at Φ_1. Gradient must be measured along the isobar with low pressure to the left in the Northern Hemisphere, to the right in southern. For sea-level charts use upper tabular values with bay argument (BAZZ FAXZ). For constant-pressure charts use lower tabular values with the button argument (baths).

Latitude	PRESSURE GRADIENT (Mils per 5° Lat. centered at Lat. Φ_1)										Latitude
Φ	1	3	5	10	15	20	25	30	35	40	Φ
60°	1.8	7.7	13	26	39	52	65	78	91	104	60°
	0.6	19.3	32	64	96	128	161	193	225	257	
65°	1.7	7.1	12	24	36	48	60	72	84	96	65°
	0.6	17.8	30	59	89	118	148	177	207	236	
70°	1.6	6.5	11	22	33	44	55	66	77	88	70°
	0.5	16.3	27	54	82	109	136	163	190	217	
75°	1.4	5.8	10	20	30	40	50	60	70	80	75°
	0.4	14.6	24	49	73	97	122	146	170	195	
80°	1.3	5.2	9	18	27	36	45	54	63	72	80°
	0.3	13.1	22	44	66	87	109	131	153	174	
85°	1.2	4.6	8	16	24	32	40	48	56	64	85°
	0.3	11.6	19	39	58	77	97	116	135	155	
90°	1.1	4.1	7	14	21	28	35	42	49	56	90°
	0.3	10.3	17	34	52	69	86	103	120	138	
95°	1.0	3.6	6	12	18	24	30	36	42	48	95°
	0.2	9.1	15	30	45	61	76	91	106	121	
100°	0.8	3.1	5	10	15	20	25	30	35	40	100°
	0.2	7.8	13	26	39	52	65	78	91	103	
105°	0.7	2.6	4	8	13	17	21	25	29	34	105°
	0.2	6.5	11	22	33	43	54	65	76	87	
110°	0.6	2.1	4	8	11	15	19	23	26	30	110°
	0.1	5.4	9	18	27	36	45	54	63	72	
115°	0.5	1.7	3	6	9	12	15	18	21	24	115°
	0.1	4.3	7	14	22	29	36	43	50	58	
120°	0.4	1.3	2	5	7	9	12	14	16	19	120°
	0.1	3.3	5	11	16	22	27	33	38	44	
125°	0.3	1.0	2	4	5	7	9	11	12	14	125°
	0.1	2.5	4	8	12	16	21	25	29	33	
130°	0.2	0.8	1	3	4	5	6	8	9	10	130°
	0.1	1.9	3	6	9	12	15	18	22	25	
135°	0.2	0.5	1	2	3	3	4	5	6	7	135°
	0.1	1.4	2	4	6	8	11	13	15	18	
140°	0.1	0.4	1	1	2	2	3	3	4	4	140°
	0.1	1.0	1	3	4	6	7	9	10	12	
145°	0.1	0.3	0	1	1	2	2	2	3	3	145°
	0.1	0.7	1	2	3	4	5	6	7	8	
150°	0.1	0.2	0	1	1	1	1	2	2	2	150°
	0.1	0.5	1	1	2	3	3	4	5	6	
155°	0.1	0.1	0	0	0	1	1	1	1	1	155°
	0.1	0.3	0	1	1	2	2	3	3	4	
160°	0.1	0.1	0	0	0	0	0	1	1	1	160°
	0.1	0.2	0	0	1	1	1	2	2	2	
165°	0.1	0.1	0	0	0	0	0	0	0	0	165°
	0.1	0.1	0	0	0	0	0	1	1	1	
170°	0.1	0.1	0	0	0	0	0	0	0	0	170°
	0.1	0.1	0	0	0	0	0	0	0	0	
175°	0.1	0.1	0	0	0	0	0	0	0	0	175°
	0.1	0.1	0	0	0	0	0	0	0	0	
180°	0.1	0.1	0	0	0	0	0	0	0	0	180°
	0.1	0.1	0	0	0	0	0	0	0	0	
	1	3	5	10	15	20	25	30	35	40	
	PRESSURE GRADIENT (Mils per 5° Lat. centered at Lat. Φ_1)										

EXAMPLE (A) Given: pressure gradient of 30 mbs./5° lat. centered at 65° S. lat.
Find: 12-hour displacement = 2.9° at longitude of 20° S. latitude.
(b) Given: geostrophic pressure gradient=1100 gph./5° lat.centered at 50° lat.
Find: 12-hour displacement = 2.7° at longitude of 10° latitude.

by Dunger 1

INSTRUCTIONS FOR USING SCALES 12 HOUR ISOBARIC AND GEOSTROPHIC WIND

1. From map find sea level pressure difference, Δp, in mb. (or height difference, Δz in 10's of gpf), for C.P. (surface) across a distance equal to 5° of latitude centered at latitude Φ_1 and measured normal to isobars (or contours).

no extremes (Ø (extremes concurrent)

2. (a) On scale A (V_1 for C.P. surface), determine "Φ_1", the distance scaled off from Φ_1 to the production having the value of Δp (Δz), R_1 found in (1).
(b) Scale off a vector of length "c" upward from index (1) read Φ_1 at end of vector.

no extremes (Ø (none))

3. (a) On scale B (V_2 for C.P. surface), determine "Φ_2", the distance scaled off from Φ_2 to the production having the value of Δp (Δz), R_2 found in (1).
(b) Scale off a vector of length "c" upward from index (1) +180 Φ_2 at end of vector.

SEA LEVEL
Δp OVER 5° LAT. AND 2.5 m/sec GEOSTROPHIC WIND

CONSTANT PRESSURE SURFACE
Δz OVER 5° LAT. AND GEOSTROPHIC WIND SPEED (100's feet)

SCALE A

SCALE B

SOUTH POLAR AREA

METEOROLOGICAL PLOTTING CHART

POLAR STEREOGRAPHIC PROJECTION
True scale at latitude 60°
(1:10,000,000)
Radius of Projecting Sphere: 31.891 cms.
CONFORMAL (ISOGONAL), MAGG PHOTO-ADAPTABLE

LATITUDE

NAUTICAL MILES

STATION ..... DATE ..... TIME .....
ANALYST ..... PLOTTER .....

Edited by Chief of Naval Operations
Distributed by Office of the
Chief of the Bureau of Aeronautics

Meteorological Plotting Chart
SOUTH POLAR AREA—SCALE 1:20,000,000

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