

MANILA
OBSERVATORYA) BASIC FACTS

- 1) Pressure: The general pressure gradients are very small in the tropics. The diurnal and semi-diurnal variation of pressure is large. However, in typhoons the pressure gradient can be very large.
- 2) Temperature: There is a rapid adjustment of surface temperatures, especially at sea. Horizontal temperature gradients are slight, air stream temperatures not very different, and their variations can overlap. Temperatures high.
- 3) Water Vapor: With temperatures and relative humidity both high, etc., the actual amount of water vapor in the air is large.
- 4) Winds: Surface winds (and temperatures) not very representative of general conditions a good part of the day.
Winds, especially at the surface, not gradient, much less geostrophic, The Coriolis force is weak; friction comparatively strong, especially at the surface.
- 5) Weather Types: There is a definite persistence of weather types, much more than in the temperature zone; AND YET the weather may change very suddenly due to trigger effects.
- 6) Inadequate data: The number of weather stations on land, and especially at sea, is inadequate.

B) SOME IMPORTANT CONSEQUENCES

- 1) Pressure: It is difficult in the tropics to separate local diurnal effects from widespread gradient changes, since both changes are of about the same magnitude, a few millimeters. Allowance for the diurnal wave is difficult, since although the semi-diurnal wave of pressure is very regular, the diurnal is decidedly not.
Hence, too, 3 to 4 hr. pressure tendencies are mainly illusory, due to diurnal variations. Isallobar analysis difficult.
Due to the weak pressure gradient, the winds are not controlled by the isobars.
- 2) Temperature: There are few true surface cold fronts, but such fronts may remain aloft. There are few warm fronts, and there are no warm sectors in typhoons, at least if the storm is at all developed.
Air streams soon lose their surface characteristics, and temperature can not be used as a representative criterion of the whole mass.
Since there are so many clouds and so much convection, radiosonde observations are not apt to be representative, since the balloon may go in and out of clouds, and change from ascending to descending air, etc. rapidly.
- 3) Water Vapor: The atmosphere becomes generally conditionally unstable, ready to trigger very easily. Convection is very vigorous; many clouds and much rain in certain seasons, which rain can be very spasmodic, usually of shower type. With the general instability, convergence easily leads to rain, etc., and must be carefully watched.
Convection destroys at least surface fronts quickly.