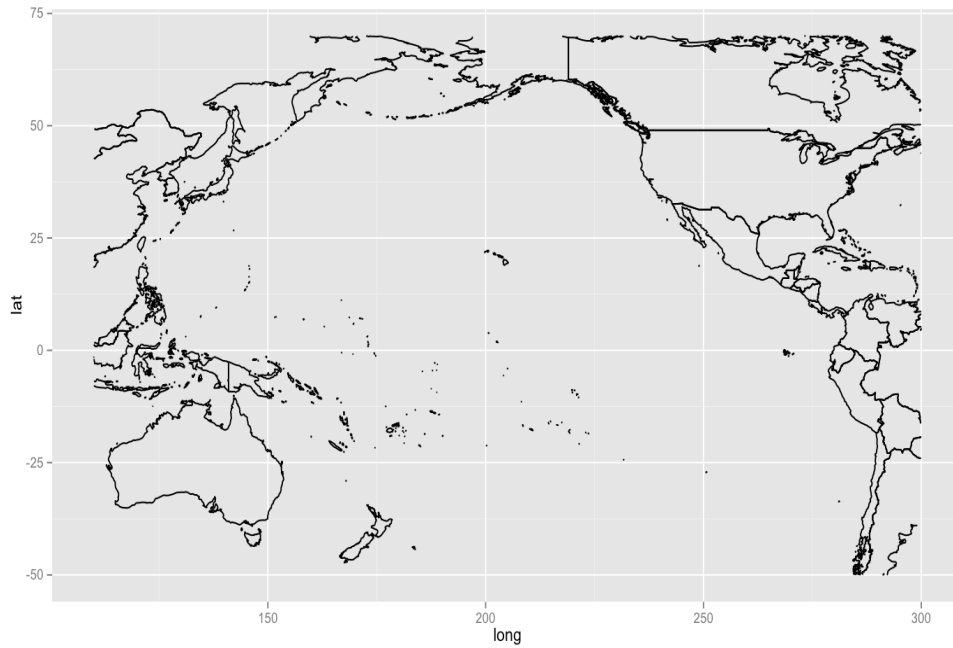


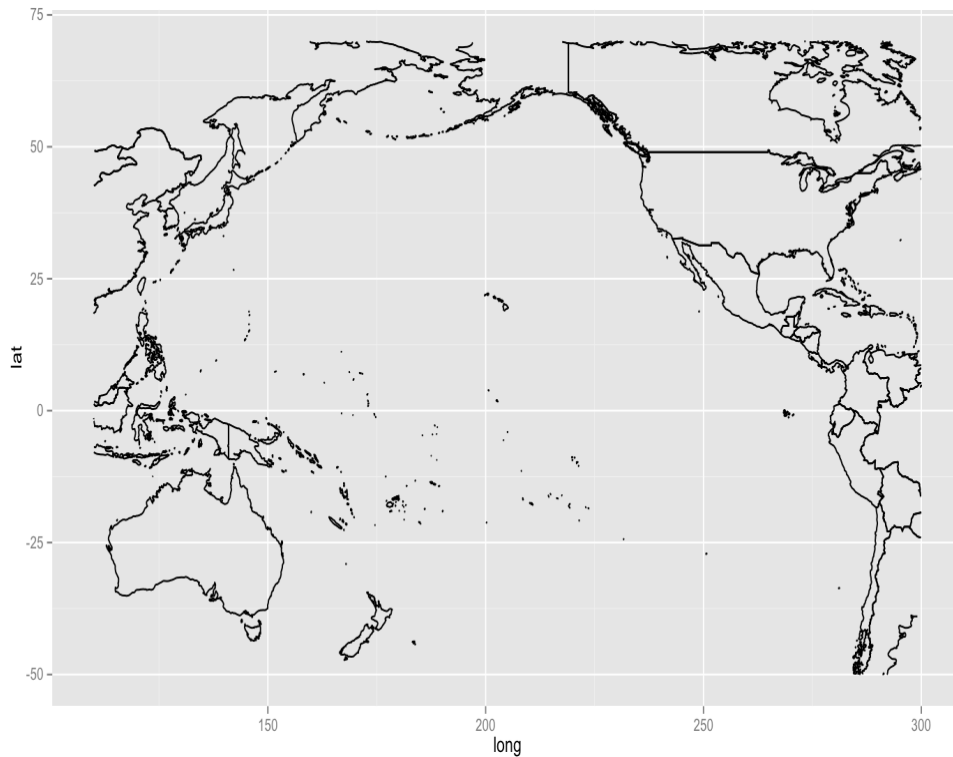
EL NINO & LA NINA

/15 NAME _____

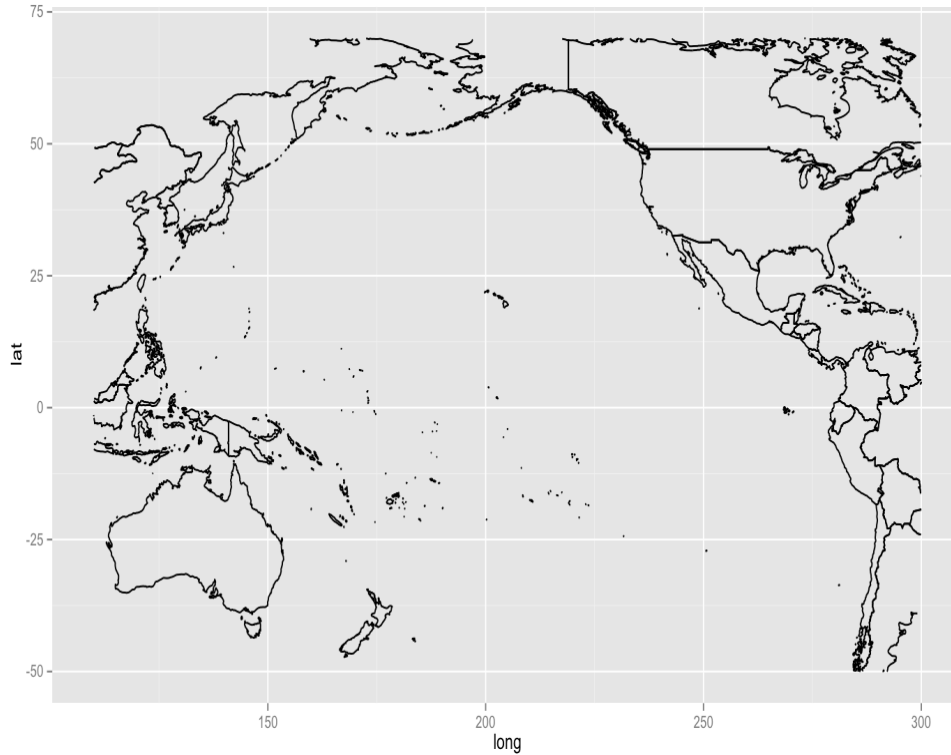
Draw the *typical* ocean current at the equator. Shade the part of the ocean that is cooler. Shade the part of the ocean that is warmer. (3pts)



Draw the *EL NINO* ocean current at the equator. Shade the part of the ocean that is cooler. Shade the part of the ocean that is warmer. (3pts)



Draw the **LA NINA** ocean current at the equator. Shade the part of the ocean that is cooler. Shade the part of the ocean that is warmer. (3pts)



2016 was an El Nino year. Study the average temperatures for December, January, and February.

City	Avg Temp Dec Through Feb	Deviation From Normal	Rank Of Warmest Winter
Detroit	35.5°	+8.5°	6th Warmest
Sault Ste. Marie	24.7°	+7.9°	4th Warmest
Flint	33.0°	+7.8°	2nd Warmest
Saginaw/Bay City	31.7°	+7.6°	2nd Warmest
Jackson	31.7°	+7.6°	6th Warmest
Lansing	31.2°	+7.1°	5th Warmest
Traverse City	30.3°	+7.0°	4th Warmest
Ann Arbor	32.5°	+6.5°	5th Warmest
Alpena	27.4°	+6.3°	5th Warmest
Muskegon	32.3°	+6.0°	5th Warmest
Kalamazoo	31.9°	+5.5°	6th Warmest
Grand Rapids	31.5°	+5.1°	6th Warmest
Marquette	21.6°	+3.7°	26th Warmest

1. How was Michigan's winter in 2016 compared to other years?
2. On Christmas day in 1982, the temperature got up to almost 70 degrees here in Gratiot county. What weather pattern was it?
3. Why is this weather phenomenon called "El Nino?" (hint: think about when strange weather patterns happen)
4. What effects does an El Nino have on weather in Michigan?
 - a) Warmer temperatures during the winter months
 - b) Devastating droughts
 - c) Colder temperatures during the winter months
 - d) Devastating floods
5. Where do devastating droughts happen during an El Nino?
 - a) Michigan
 - b) East Asia and Northern Australia
 - c) Western coast of South America
 - d) Central Europe
6. In which ocean does the El Nino/La Nina occur?
 - a) Atlantic Ocean
 - b) Indian Ocean
 - c) Arctic Ocean
 - d) Pacific Ocean