



Figure 4-1: 20-year average of sea level pressure and the location of major storm tracks in April.

## Section 4: Weather Prospects for the Eclipse

### 4.1 An Overview of April's Climate

North America's second total eclipse of the past seven years comes at a very different season than 2017. April is a month of transition across the continent, with winter storms gradually giving way to the convective buildups of spring and summer. In Mexico, the winter dry season is in its last month before the summer rains begin. Over the United States, southern parts of the track are already well into the thunderstorm season, while to the north, spring storms and occasional light snow still hint of the departing winter. In Maritime Canada, the last of the winter snow has yet to melt and fresh snowfalls are a threat with every weather system.

In April, two high-pressure systems straddle the North American continent, one northeast of Hawaii in the Pacific, the other between Bermuda and the Azores in the Atlantic. These anticyclones are just beginning to strengthen from their winter minimums, giving Mexico a last dry and sunny month before the summer rainy season begins. To the north, a poorly organized surface low lies along the eastern foothills of the Rocky Mountains with a low-pressure trough extending across the Great Lakes and Newfoundland to join up with a deep low near Iceland.

The low-pressure centers and their extended troughs roughly mark April's major storm tracks across North America (Figure 4-1). Three of the most important tracks—the Alberta Clipper, the Colorado Low, and the Hatteras Low (which is called a Nor'easter in New England)—converge on the eclipse track where it passes Newfoundland. These storms are large systems with extensive cloud shields and while not too likely on eclipse day, can bring grief across most of the shadow track if they do happen along. The tracks shown in Figure 4-1 are schematic, as the actual paths can be highly variable. The storms that cruise these tracks eventually end up in the semi-permanent Iceland Low, off the northeast corner of Figure 4-1.

Given the season and the scenario above, it is no surprise that cloudiness increases gradually from south to north along the track. Figure 4-2 shows the average April cloudiness along the central line across North America. Average cloud amounts range from under 40% in Mexico to over 80% in Newfoundland, but along the way there are regional pockets of lower cloudiness that offer refuge for eclipse day.