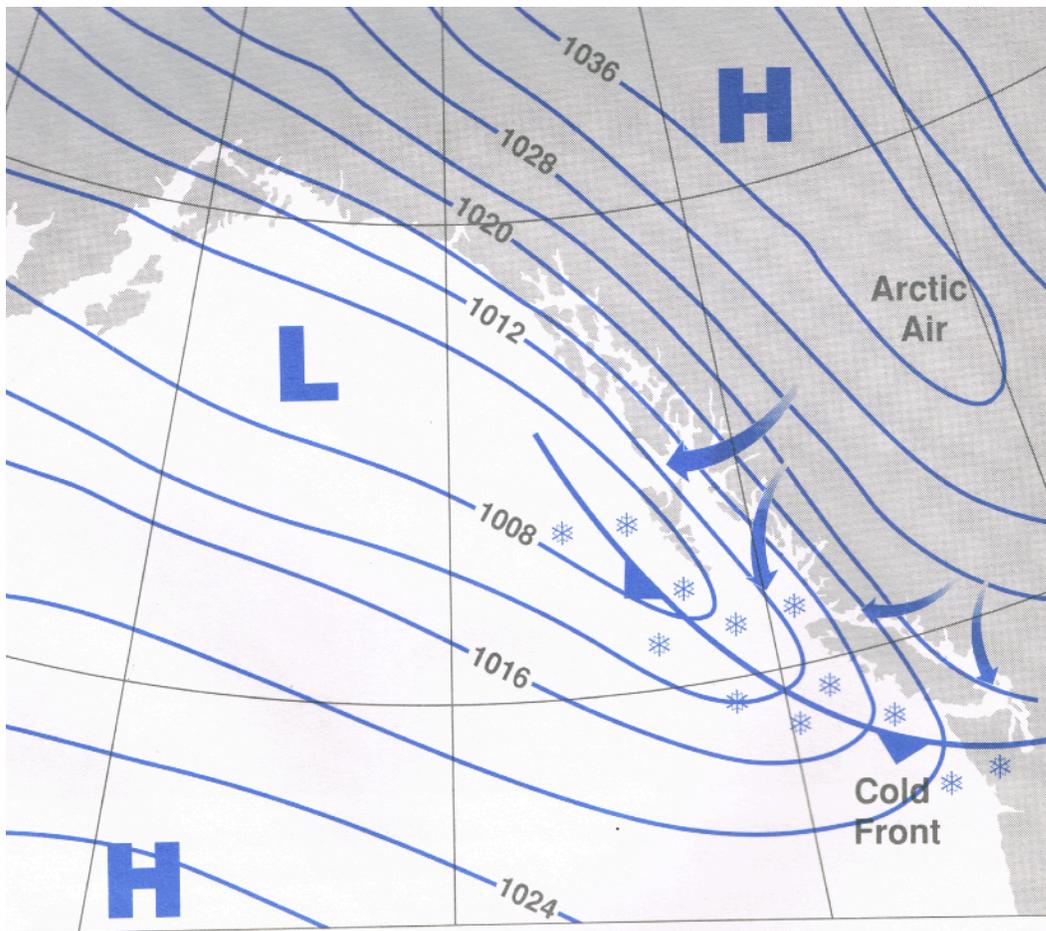


Arctic Outbreaks (Brrr!)

During our winter months when high pressure is over Alaska and the Arctic, a layer of cold air thickens and can flow into the southern interior provinces. It cascades down the mountains in BC producing very strong winds that can be treacherous at coastal inlets particularly at their mouths.

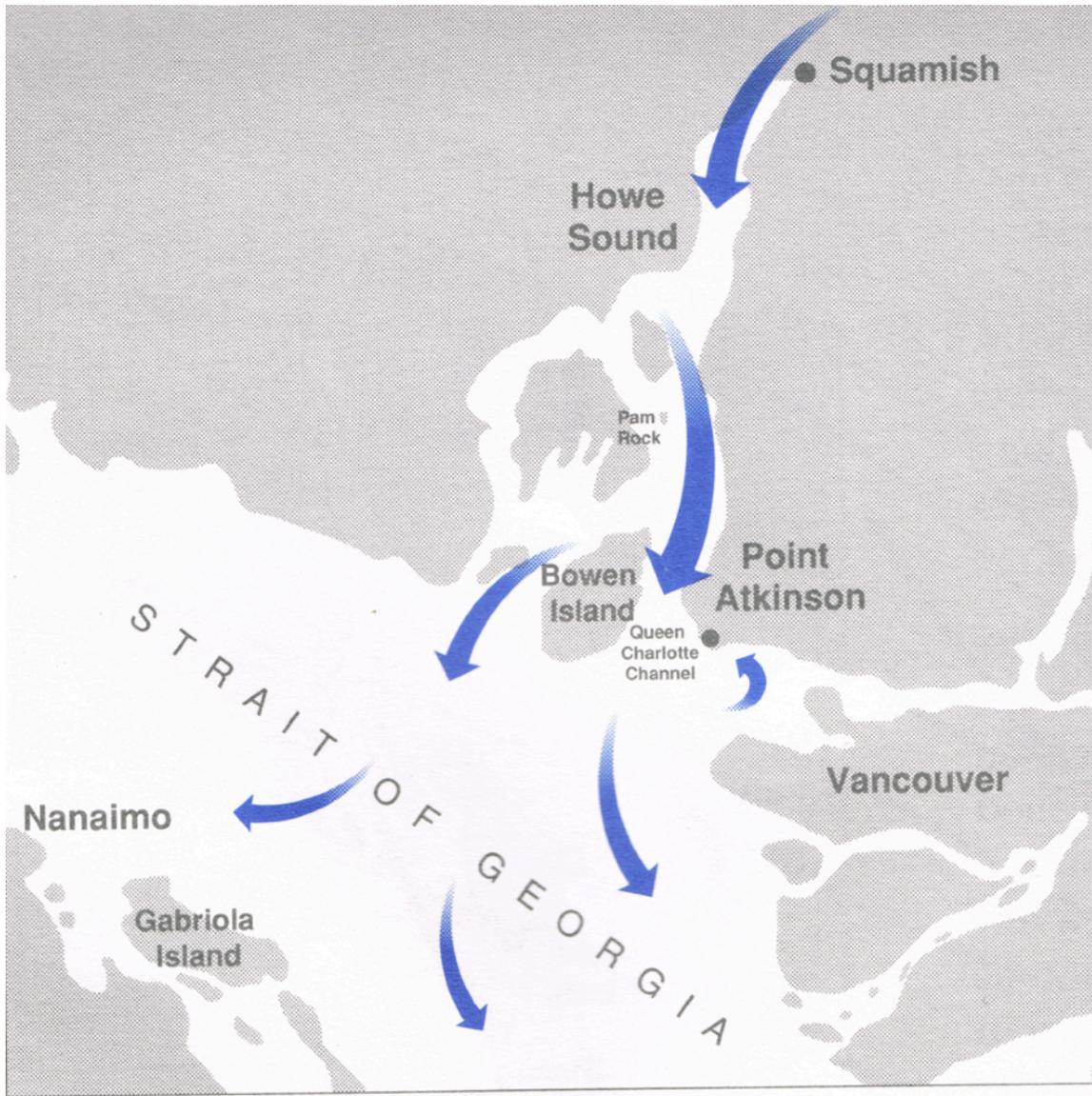
Have a look at the contour lines in this pressure contour diagram below. See the way the winds will run down the pressure gradients that are running northwest to southeast. The wind comes down from the top of our province and out the long coastal inlets sometimes reaching speeds of 60 knots and record winds clocking over 100 knots. The weather is cool, crisp and clear. Strong winds flow out of the mouth of the coastal inlets but gradually weaken when they are no longer confined by the narrow inlets (gapping). Extreme caution is needed when crossing coastal inlets at these times. Because of the nature of these winds moving off the land, many local weather reporting buoys and stations are not able to record the winds effectively enough to give a full picture of what is occurring down the inlets.



A ridge of high pressure builds over the province as the cold, arctic air flows into the Interior. This pushes the cold front out onto the coast. Outflow winds of 60 knots or more can occur through the mainland inlets and near the mouth of the inlets.

(Pressure values in millibars)

Squamish Winds:



An Arctic Outflow wind called a Squamish blows down Howe sound and takes the name Squamish from the town at the end of the inlet. The term Squamish is used in general as strong outflow winds around the coast and not just this specific incident. The Point Atkinson lighthouse may be reporting light SE winds during an arctic outflow yet just a short distance to the west there will be NE Gales.

When cold air moves over mainland inlets, sea smoke can be formed. This is due to the temperature difference between the warmer air above the moderating coastal waters and the cool dropping air from the Squamish. For this to occur Squamish winds must be well below freezing, 10 C or less, and thus produces a thin 1-2 metre fog above the water surface. Similarly an ice fog can be created during severe outflow winds. Extremely strong gusty outflow winds churn the water into turmoil; small spray particles

freeze in the cold air contributing to superstructure (large boats and barges) icing. This extreme icing can reduce radar effectively and cause incidents.

Arctic Outbreaks end when the cold air is forced away from the coast by a Pacific storm (low pressure). This will create a mix of snow and rain in the inlets until the warmer SE winds ahead of the coastal low strengthen and push the cold Arctic airflow inland. This may take some time in the inlets as the cold and warm air struggle and eventually the larger low pressure wins out and pushes the cold arctic air off the coast.