

Spring 2008 (part 2)

4th-7th July - Very cold, stormy outbreak, including widespread snow

This period began with an active trough crossing NZ, followed by a very cold outbreak and widespread snow to low levels in both islands. Cold southerlies then continued for the rest of the period.

During the 4th, an active trough crossed the country, with a low forming to the southeast of the South Island by later in the day. Heavy squally showers accompanied the trough in western and southern areas, with heavy snow about the main divide and Southern Lakes. This had closed all the major passes by the evening, as well as higher roads in the Nelson area.

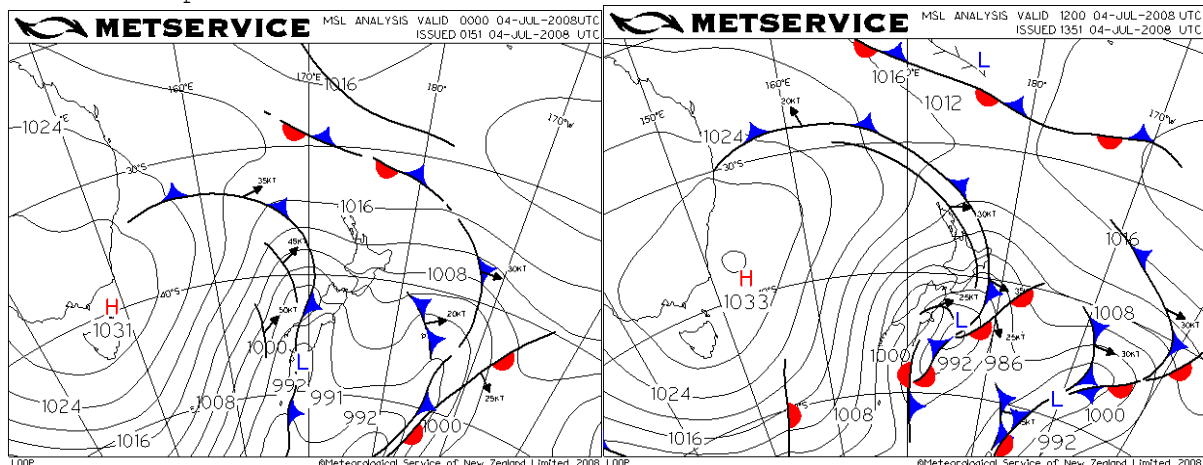
By the 5th, a deep low was lying to the southeast, with southerlies over the South Island and westerlies affecting the North Island. Snow fell to sea-level in some eastern and southern areas of the island, including Dunedin and Christchurch, with gales developing along the east coast.

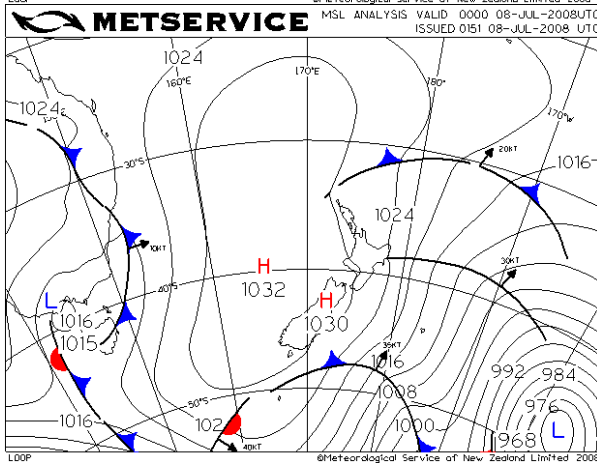
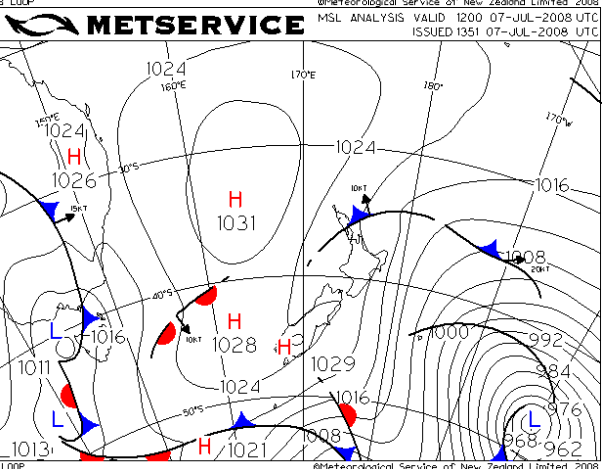
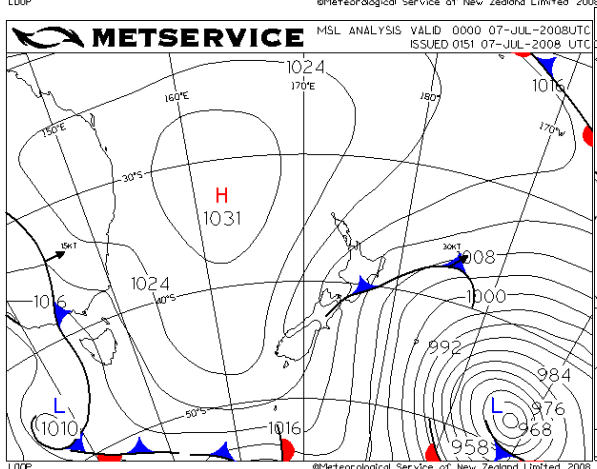
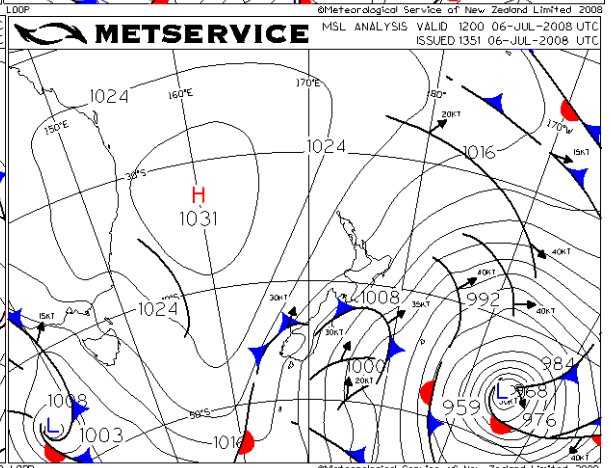
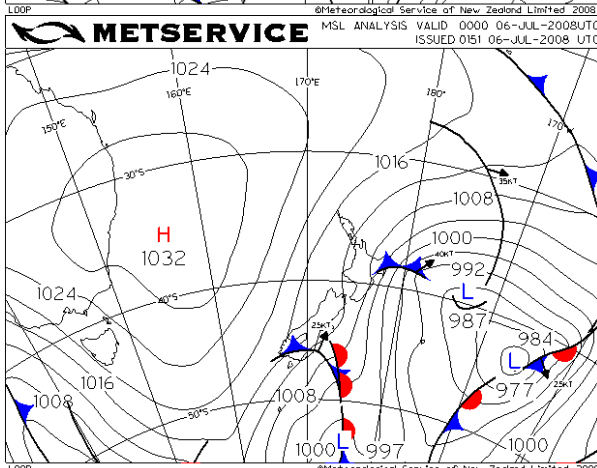
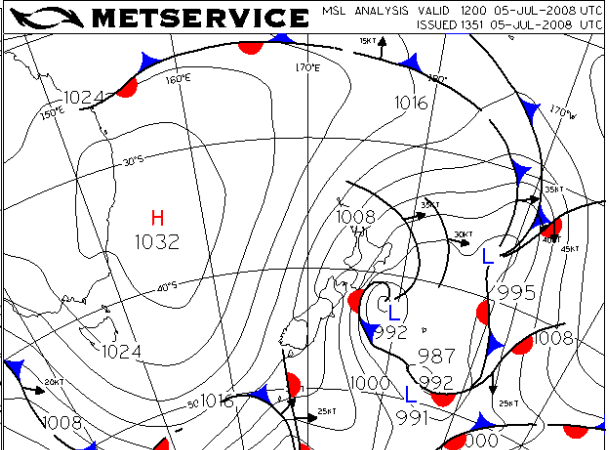
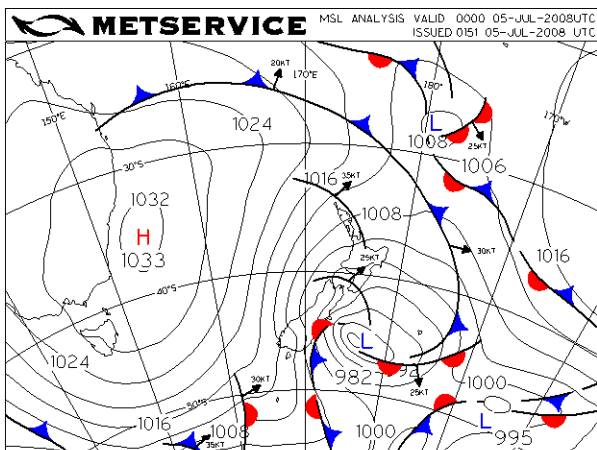
In the North Island, heavy squally showers with thunderstorms and hail lashed areas exposed to the west. Temperatures became unusually cold even for mid winter, with snow to low levels about the hills and central high country, closing all roads around Mt Ruapehu. Even in low-lying areas from Taranaki to Palmerston North, heavy falls of hail and sleet disrupted road travel. Further north, snow fell to unusually low levels in parts of the Waikato and Bay of Plenty later in the day, including both Tokoroa and Rotorua, while hail and snow even closed the highway across the Kaimai Ranges between Tauranga and Matamata.

By the 6th, the low had moved well away, but a cold south to southwest persisted over NZ until the 8th, with showers continuing in areas exposed to the south and east and snow showers on the high country. In areas sheltered from the showers, it was fine but still very cold with heavy frosts in places. Hokitika shivered under a July record -3C minimum on the morning of the 6th, while Taumaranui plummeted to -5C in the early hours of the 7th. Waiouru, which only reached a 1C maximum under snow showers on the 6th, dropped to an icy -9C that night.

On the 8th, an anticyclone moved onto the country, with the southerlies dying out in most areas and any remaining showers clearing.

Mean sea-level analyses for midday NZST 4th July to midday NZST 8th July in 12 hour steps are shown here.





26th July-3rd August - Storms cause extensive damage to many areas

During this period, two major low pressure systems moved across NZ, bringing stormy weather which caused in much damage and disruption to many areas.

A low, which had developed in sub-tropical waters off the coast of Queensland, a few days earlier, deepened rapidly as it closed in on the North Island on the 26th. An east to northeast flow became very strong over most of the island, with torrential rain in northern areas (124mm in Whangarei), as well as severe gales in places to the west and southwest of mountain ranges (such as the Horowhenua/Manawatu and the Thames Valley). The existing airmass over the island was cold (a weak but cold southerly covered most of the NZ just prior to the arrival of the storm), and heavy snow fell on the central high country, closing roads. Blizzard conditions on Mt Ruapehu (with winds gusting up to 200kph) necessitated the evacuation of skiers from the Turoa and Whakapapa ski-fields. Waiouru only reached 2C during the day, while Taupo's maximum was a chilly 6C.

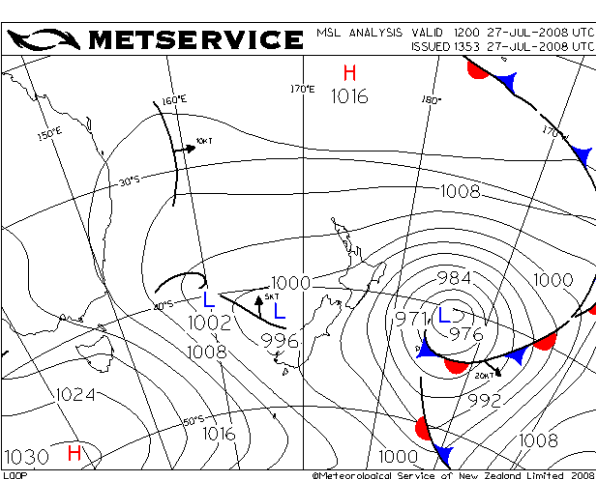
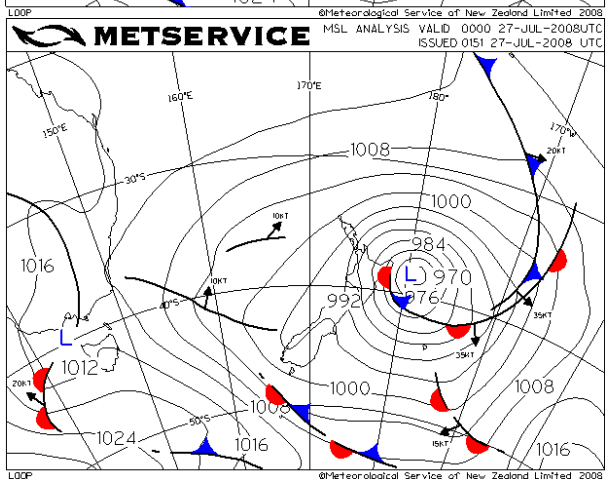
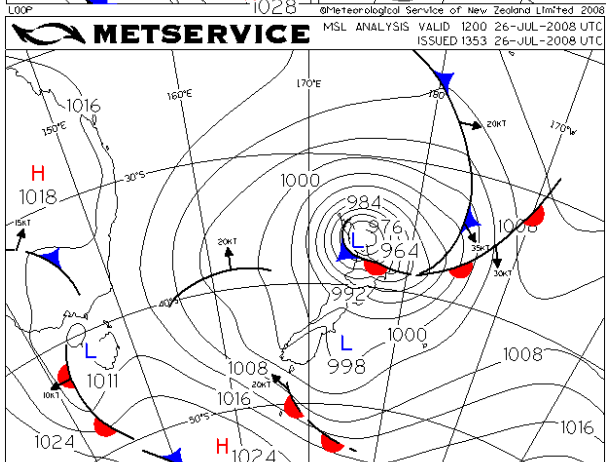
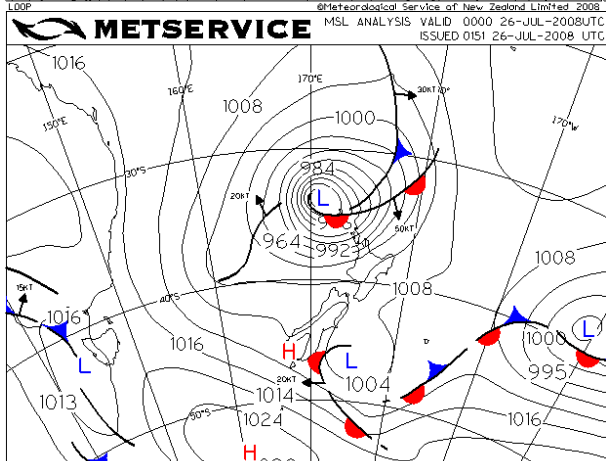
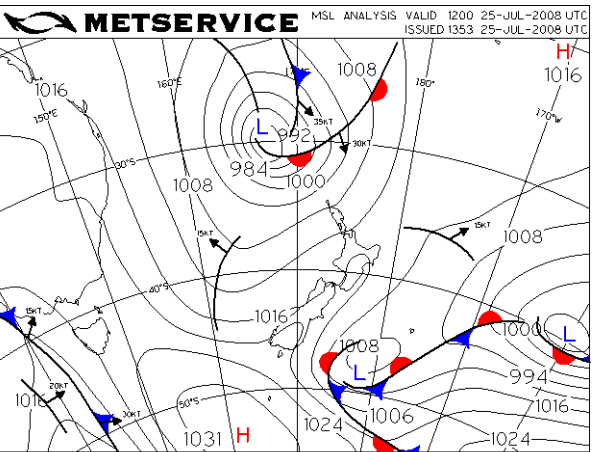
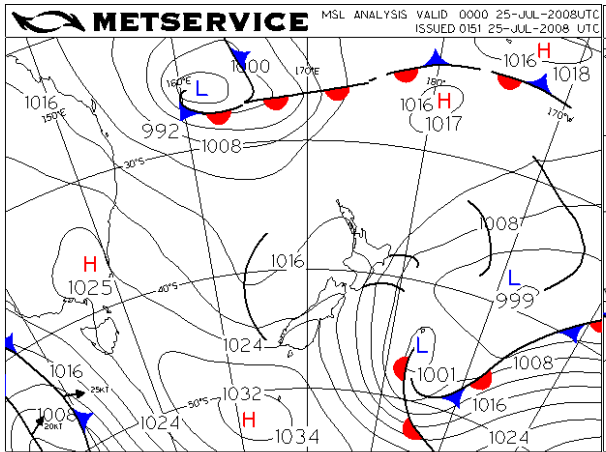
As the low moved away to the east of the North Island on the 27th, heavy rain drenched the east of the island (168mm at Waipoapoa, Hawkes Bay), and severe southerly or southwesterly gales lashed several areas, including Auckland. The consequences of this stormy weather included extensive flooding and slips in areas drenched by the heavy rains, while the wind winds knocked down trees, power-lines, and damaged many buildings. Three people were drowned as a result of heavy seas in the Bay of Plenty.

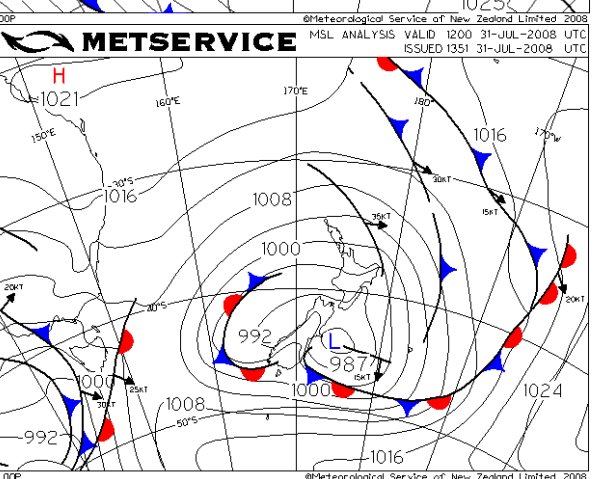
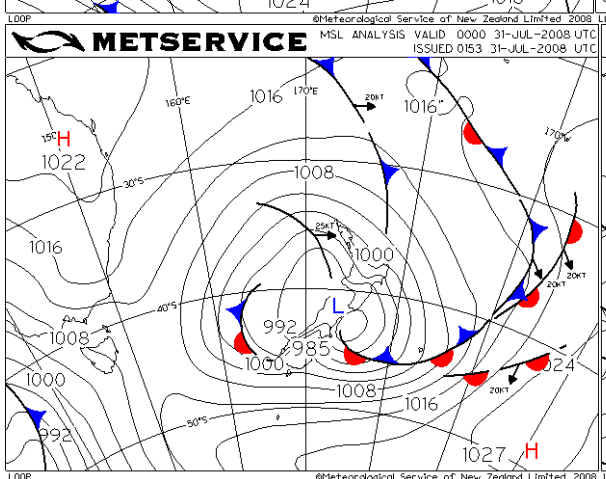
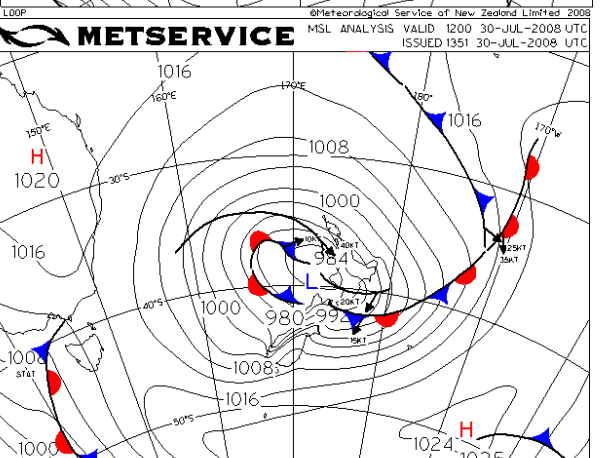
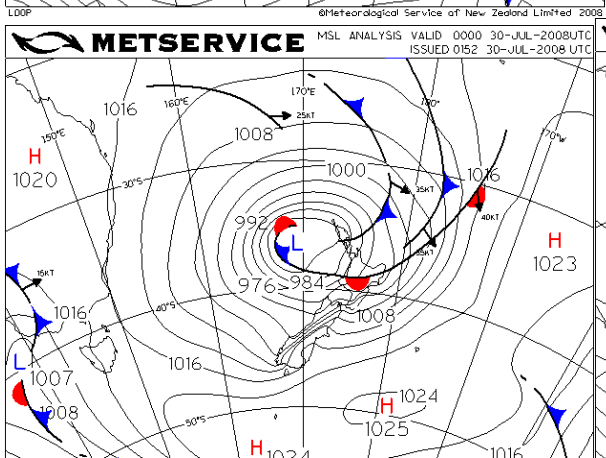
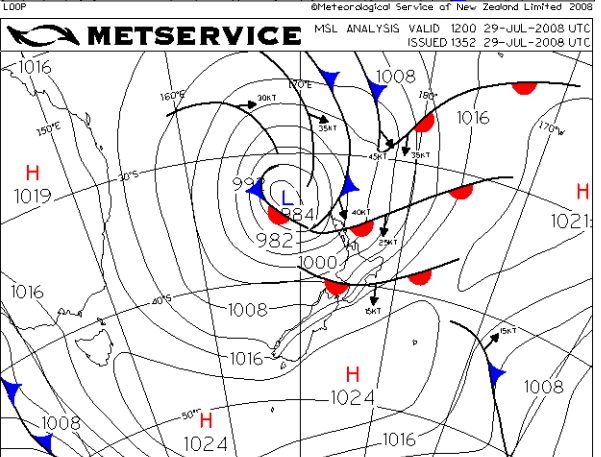
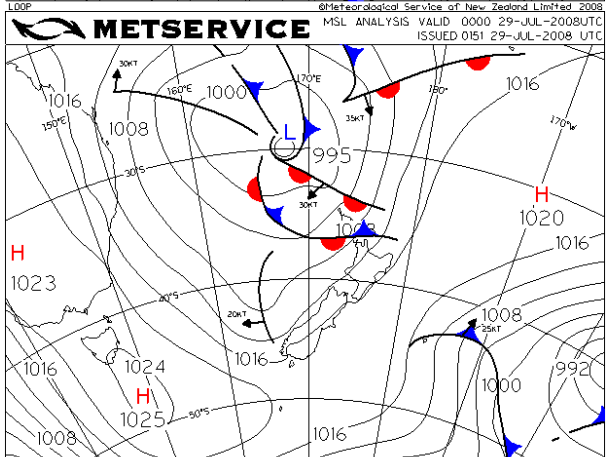
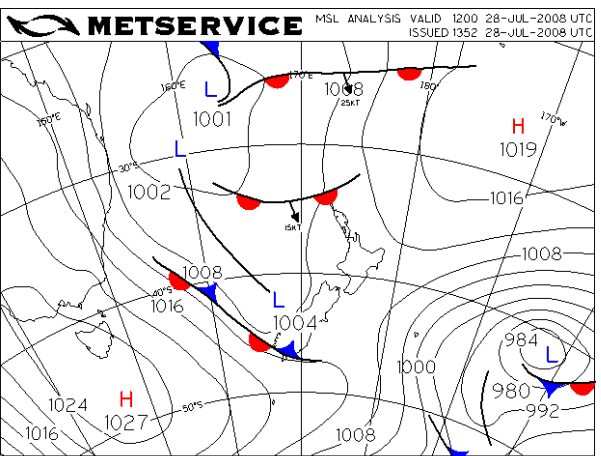
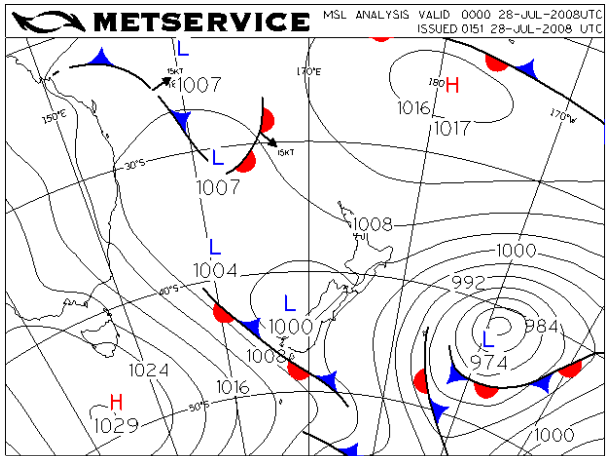
On the 28th, conditions had improved somewhat, as a weak ridge covered northern and central NZ. However, a complex low pressure system developed over most of the Tasman Sea during the day. During the 29th, this had coalesced into another deep low which approached the far north by the end of the day, and then moved southeast to lie east of the South Island the next day. The North Island was lashed again by heavy rain and severe gales (northeasterly initially and then northwesterly), with rainfall totals including 125mm in Paeroa, about 300mm at stations in the Coromandel Ranges. Damage was again widespread, especially as this storm came so soon after the previous one and the ground was still waterlogged.

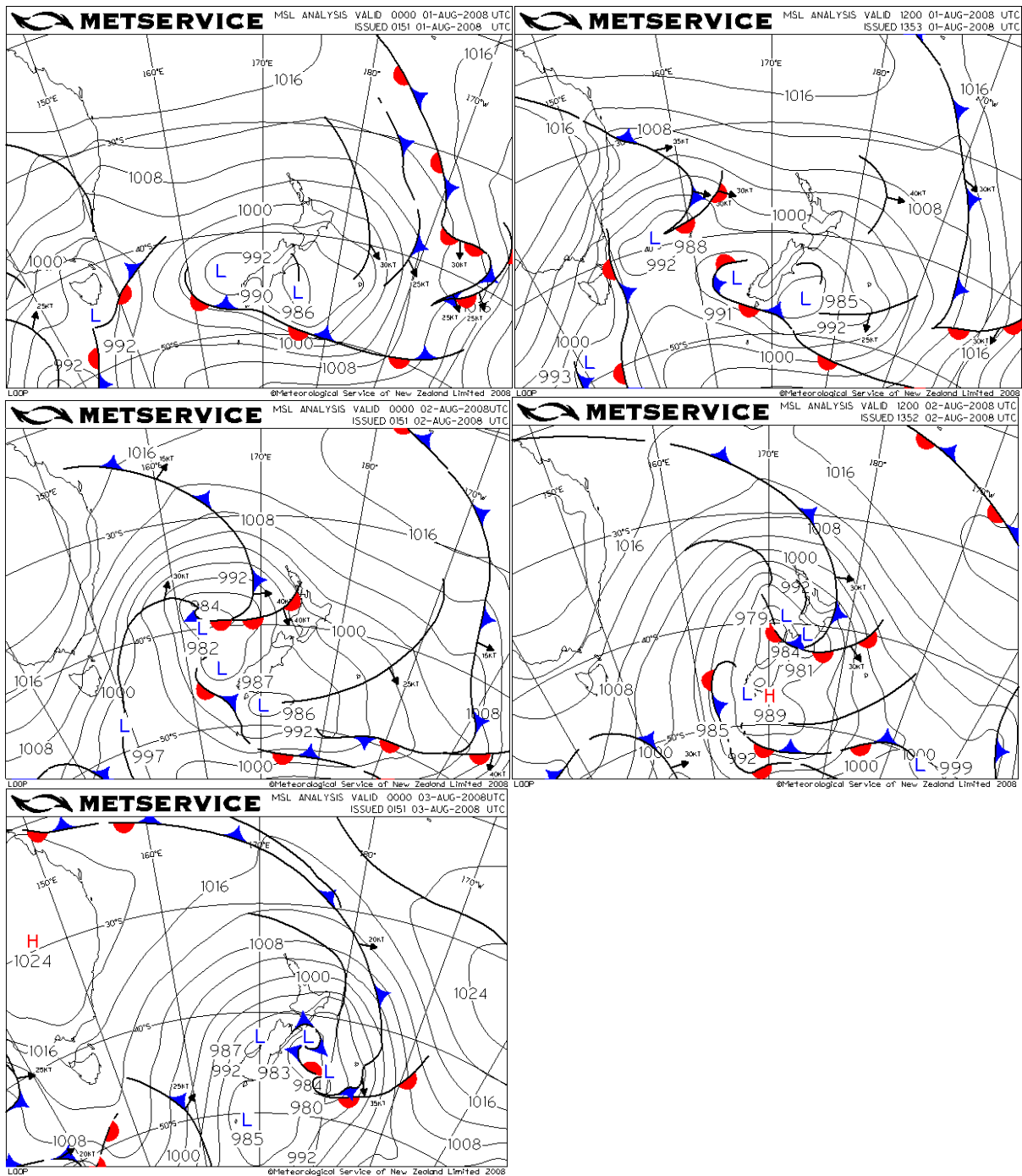
Unlike the first storm however, this one also affected the South Island, with heavy rain drenching eastern areas, and severe gales lashing the north and west. Areas in Canterbury north of Christchurch were worst affected, with homes evacuated at Amberley Beach and Sefton. Major roads, including SH1, were closed by slips, debris, and flooding, while heavy snow in the South Canterbury high country closed the highway between Twizel and Fairlie for a time. Nelson and Greymouth were among places suffering major damage from severe gales, with damaged trees, buildings and power cut to homes.

By the 1st August, the low had weakened to the east of the South Island, and rain eased there, while a westerly flow now covered northern and central NZ. However, low pressure again deepened in the Tasman Sea on the 2nd, and fronts crossed the North Island overnight on the 2nd/3rd, bringing a third period of heavy rain and gales (northwesterly this time) to many parts of the North Island. However, this time the system was faster moving, hereby limiting the damage (though delaying recovery efforts), and by later on the 3rd, a disturbed southwesterly flow was covering the country. While conditions were still unsettled in many areas, wind and precipitation were now much less than before.

Mean sea-level analyses for midday NZST 25th July to midday NZST 3rd August in 12 hour steps are shown here.







14th-19th August - Unsettled period with heavy snow in parts of South Island.

Another deep low pressure system affected NZ during this period, with snow to low levels in many parts of the South Island, with unusually heavy falls to low levels in the north and west during the early part of this period.

On the 14th, a disturbed westerly flow already covered NZ. More cold fronts in this flow moved onto country during the day, the airflow becoming much colder over the South Island by later in the day. This resulted in snow falling to low levels about the main divide and Southern Lakes. Milford Sound, which had only reached a chilly 4C, had dropped to 1C by 3pm. In the evening, the snow had become heavy enough to close all passes across the Alps, and also in the Nelson Lakes area.

During the 15th and 16th, a deep low remained slow moving over and to the south of the South Island, maintaining an unstable westerly flow over the country. This was very cold over the South Island, with heavy snow to low levels in the north and west of the South Island. These areas are not used to such snow events and disruption was widespread, including road closures, falling trees and downed power-lines. Murchison (which rarely receives any snow) was blanketed by 20cm, while snow settled down to the sea at Haast and brief snow flurries were reported in Hokitika early on the 16th. 80cm snow was recorded at the Homer Tunnel and up a a metre at Arthur's Pass during this period. Snow levels gradually rose on the 16th, but the effects of this storm were to last much longer, with many homes in the south of the Nelson area having to wait several days for power to be reconnected, and a high avalanche risk persisting in the mountains.

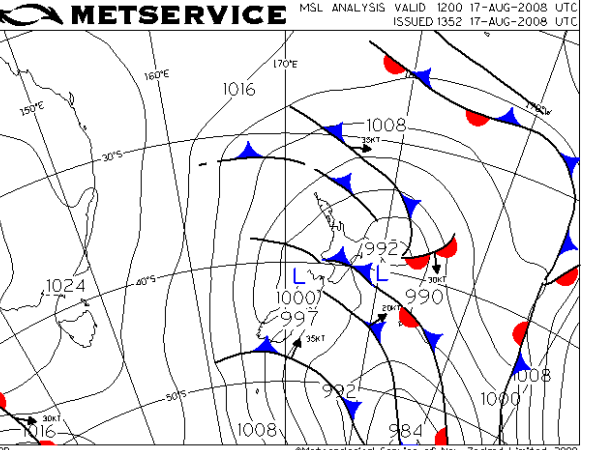
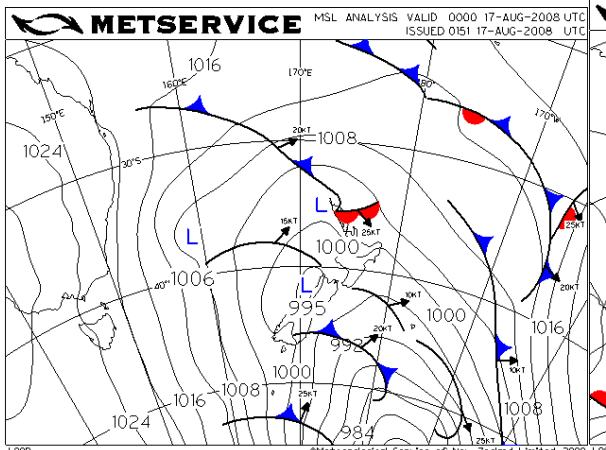
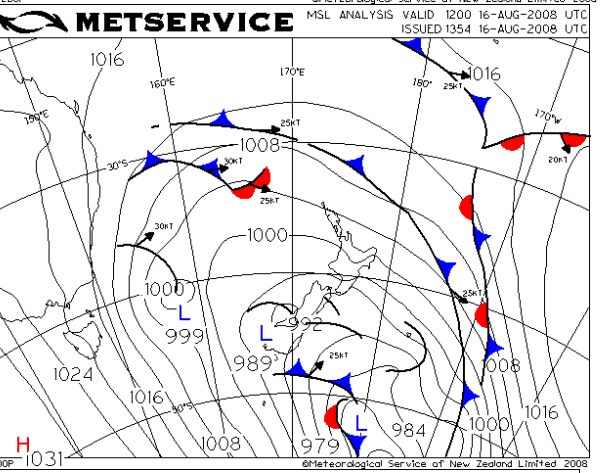
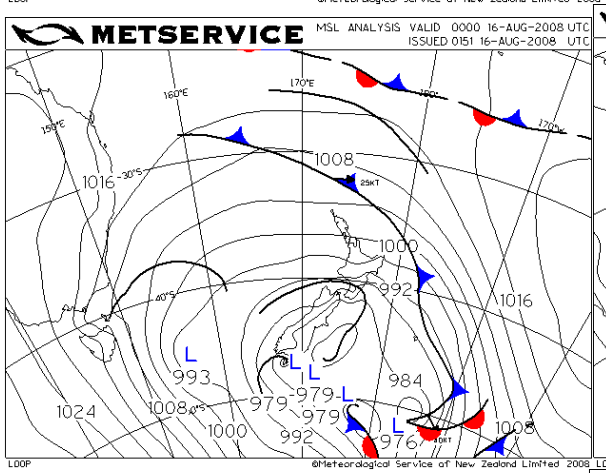
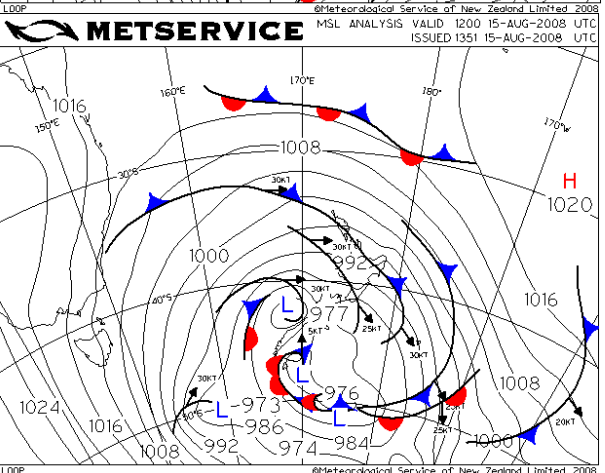
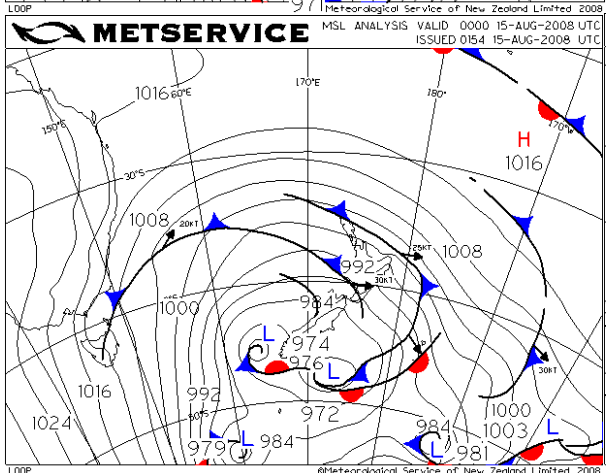
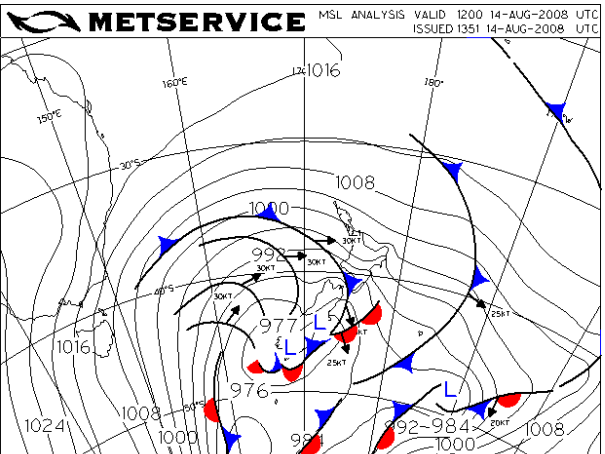
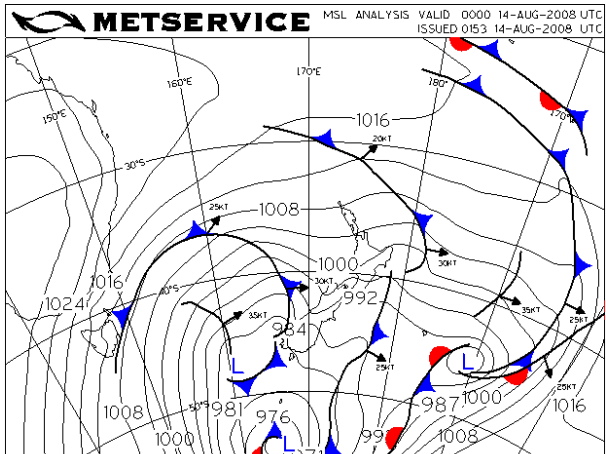
Meanwhile the west and north of the North Island were lashed by heavy downpours, thunderstorms, and hail. (eg. 300mm recorded at Mangahoa, in Tararuas, over a three day period) A small tornado was reported to have cause damage to a rural locality east of Opotiki. Heavy snow in the central high country closed the Desert Road, and also the road from National Park to the Chateau.

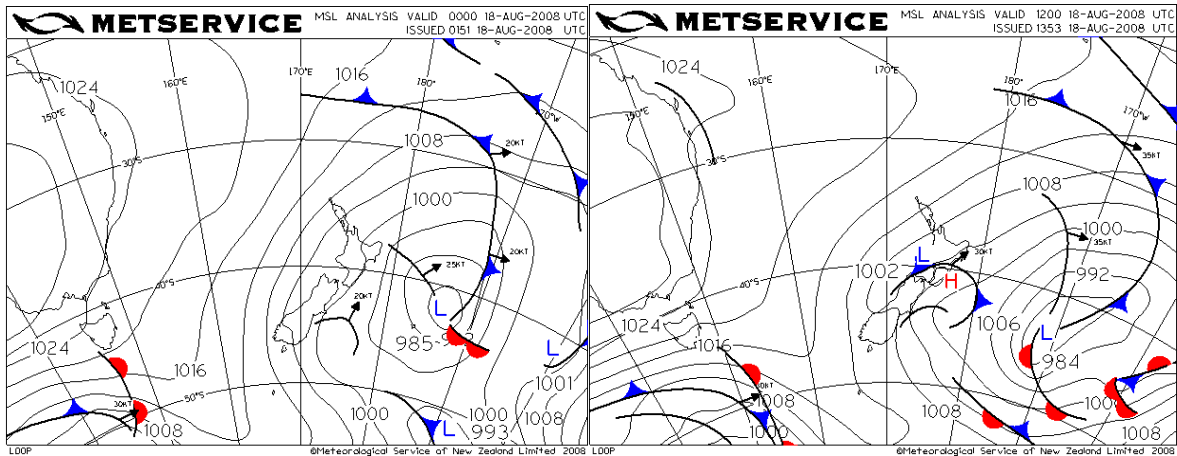
While these storms raged in northern and western areas, the east was sheltered by the mountains, though temperatures were lower in the east of the South Island (low teens) than they normally would be in such airflows. This was to change later in the weekend, as the low began to move further east later on Saturday. This allowed very cold southerlies to bring snow to low levels in Southland that evening and the airflow gradually tended southerly over the rest of the island on the 17th, with falling snow levels. At the same time a trough and cold fronts crossed the North Island, with some further heavy showers and thunderstorms in the north, including Auckland. (which only reached a 10C maximum)

By the 18th, low pressure was centred to the east of the country, with southwesterlies over the North Island and a very cold southerly flow over the South Island, with snow to low levels in the east and south. This southerly moved onto the south of the North Island in the evening, bringing heavy hail to the Horowhenua and Kapiti Coast, and snow to low levels in places such as Featherston and (reportedly) in Paekakariki.

In the early morning of the 19th, Christchurch received its fourth snowfall of the year, lightly dusting the central city, with a heavier coating on the Port Hills, while in the North island, snow briefly settled in some low-lying parts of southern Hawkes Bay (including Dannevirke) However, the southerly flow gradually eased during the day, as a ridge began to move onto the South Island.

Mean sea-level analyses for midday NZST 14th August to midnight NZST 18th August in 12 hour steps are shown here.





24th-27th August - Heavy rain causes flooding in northeast of South Island.
 The last storm of this winter vented its fury on a smaller area (the northeast of the South Island) than most of the previously mentioned storms, but this was of no consolation to those affected by it, with heavy rain causing much damage and disruption.

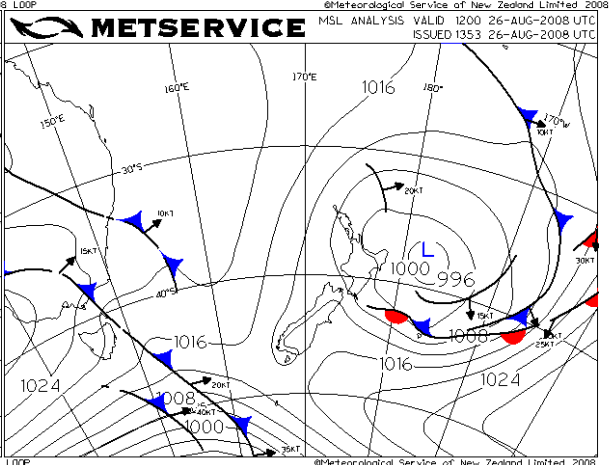
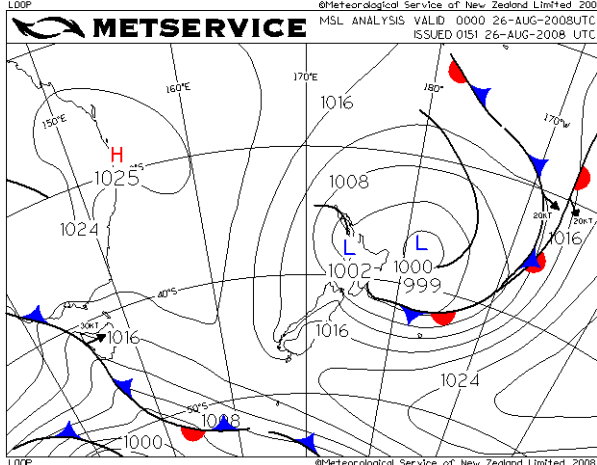
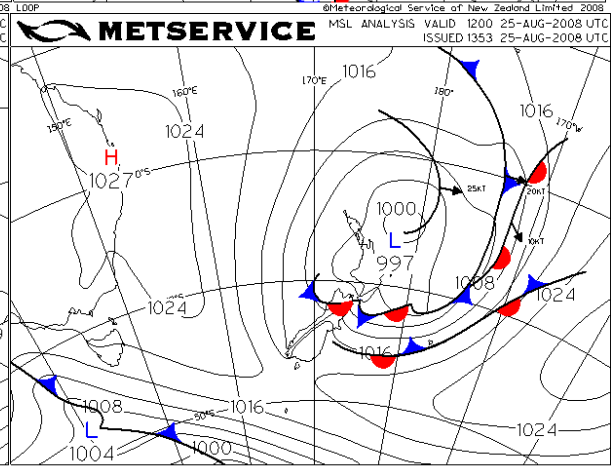
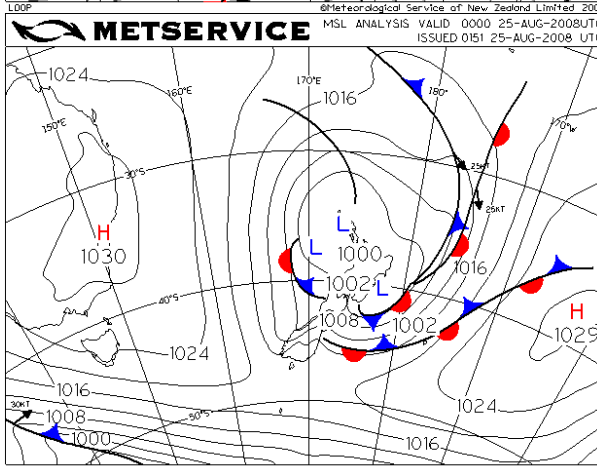
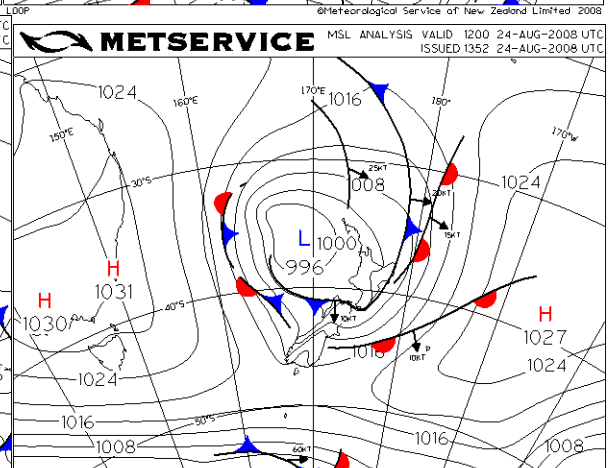
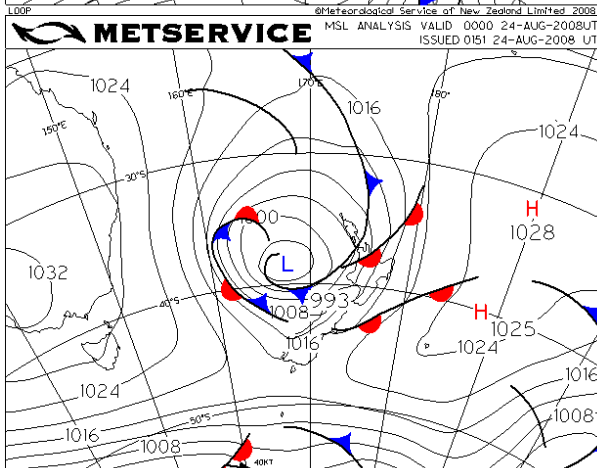
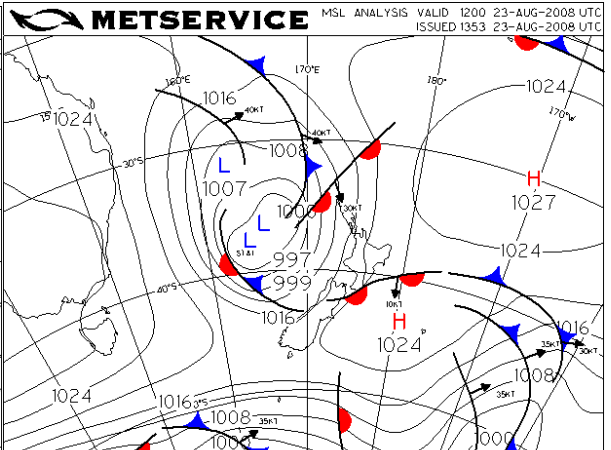
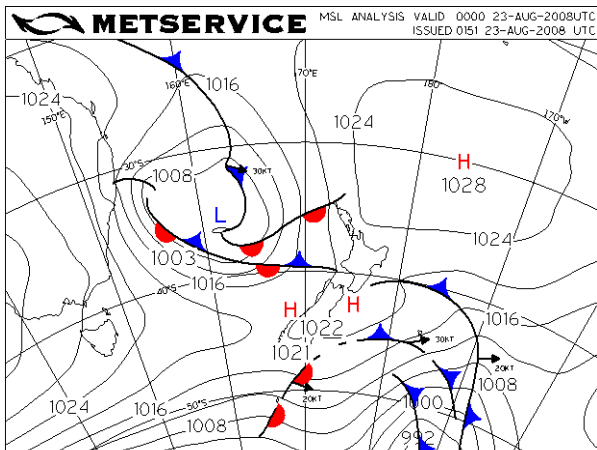
Like many of the previous big weather events this winter, it was preceded by a low developing in the western Tasman Sea. (in this case just off the New South Wales coast) The low deepened as it crossed the Tasman, and by the 24th, it was close enough to give stormy weather to NZ. During the day, fronts on its eastern flank delivered a period of heavy rain to the north and west of the North Island and later central NZ, followed by thunderstorms in the north.

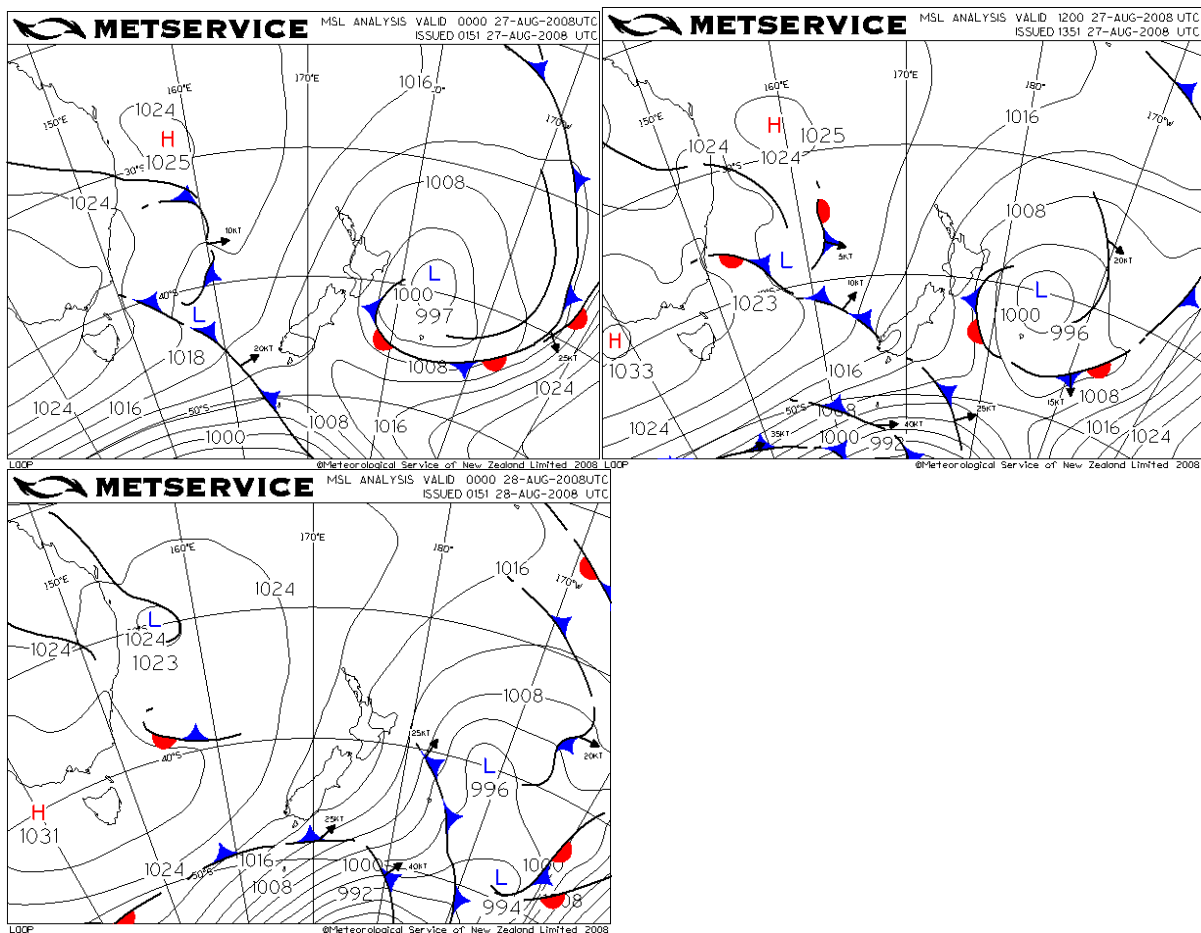
On the 25th, the low remained slow moving over and to the north of the North Island (with areas of fog, including Wellington), while a stationary front combined with a moist east to southeast flow to dump heavy rain in North Canterbury and Marlborough. As grounds were still saturated from previous rain events during the winter (especially the end of July storm), flooding and slips again caused much damage and disruption. Slips and flooding closed many highways and also the main rail link between Picton and Christchurch. Totals included 135mm at Hanmer Forest (24 hour record) and 126mm in Kaikoura (its second highest one-day total for August)

On the 27th, the low moved slowly to the east of the North Island. Heaviest rain was now in Marlborough, where major flooding and slips affected areas around Blenheim and Picton. However, the rain gradually eased in the northeast of the South Island during the day. As the moist airflow moved northwards, heavy rain developed in Wellington and the Wairarapa. The rain persisted there until the 28th, easing as the low moved well away to the east.

Unlike earlier storm systems which affected NZ during this winter, the airflow in this one wasn't cold, with snowfalls confined to alpine areas. (where they added to the already good cover on the ski-fields) In sharp contrast to the soggy northeast, the South Island West Coast basked in an unseasonably warm foehn airflow during this period. Haast recorded a record 20C maximum on the 26th (and a record 12C minimum the previous night), with 18C maximums in Greymouth, Hokitika, and Milford Sound.

Mean sea-level analyses for midday NZST 23rd August to midday NZST 28th August in 12 hour steps are shown here.





MONTHLY WEATHER IN CHRISTCHURCH - WINTER 2008

JUNE

This month saw a wide variety of weather. The first half of the month brought a number of fronts, with a predominance of westerly airflows, though there were several southerly changes. An active cold front crossed the South Island on the 7th, bringing a period of very cold southerlies with rain and then snow in the afternoon for Christchurch. The snow settled in many parts of the city with a heavier coating on the Port Hills, but cleared by evening.

During the middle of the month, anticyclonic conditions prevailed over the South Island with fine, frosty weather. This was followed by a trough crossing NZ, followed by a brief cold southerly blast on the 24th, which lashed parts of the city with thunder, hail (heavy in places) and sleet in the morning. After a heavy morning frost on the 25th, westerlies brought dry mild weather until the 27th, when the flow turned southerly with rain. Cold southerlies persisted through to the end of the month, with heavy rain on the 28th, and showers over the next two days.

JULY

July 2008 was notable for two spells of particularly stormy weather in Christchurch, but there was a period of more settled weather in between. A brief southerly flick delivered a period of evening thunderstorms (and some hail) to the city on the 3rd, as a prelude to a more active system soon to follow. A complex low developed to the southeast of the South Island on the 4th, with a cold southwesterly flow spreading over the South Island. This brought only some light rain to Christchurch, but heavy snow fell on the inland high country. The next day, the low deepened and a southerly flow became very cold and strong. Snow fell in the city in the afternoon, with

heavy falls closing roads on the Port Hills and Banks Peninsula. A slight rise in temperature by evening turned the snow into rain and sleet in low-lying parts of Christchurch, but this was heavy and resulted in surface flooding in places.

A spell of more settled weather followed for a few weeks, with only some weak troughs crossing over. However, on the 22nd, a very deep low in the South Tasman approached the South Island and had moved to the east of the island the next day, weakening a little. From then on, the weather in Christchurch was cold and dull with rain or drizzle for most of the time, with onshore (mostly southerly) winds. Snow dusted the Port Hills on the evening of the 25th. Another very deep depression delivered stormy weather to most of the North Island on the 26th and 27th, but had no extra impact on Canterbury. However, another intense low soon followed and this dumped heavy rain over most of Canterbury overnight 30th/31st. This caused significant flooding and disruption to areas north of Christchurch, though only minor flooding in the city.

AUGUST

This was another unsettled month, with many active systems crossing over and delivering two very cold southerly outbreaks and then another period of heavy rain. Southerlies brought some hail and sleet to Christchurch on the 8th and 9th, with snow briefly dusting the city (heavier on Port Hills) early on the 9th. Snow briefly fell to low levels inland and in South Canterbury on the 12th, thanks to a low moving over an existing cold airmass, and then an unstable westerly flow persisted until the 17th. While this brought fine weather to Christchurch, the airflow soon became unusually cold, with heavy snow to low levels about and west of the Alps. As the flow turned southerly from the 17th, the weather became much colder and wetter in the city, with hail and sleet on the 18th, and then a light dusting snow early on the 19th. (with a heavier coating again on the Port Hills - the 4th snowfall of the winter in Christchurch) After it cleared later in the day, a heavy frost resulted that night.

The final weather system involved another low to the north from the 24th - 26th and its slow moving fronts affecting the northeast of the South Island with heavy rain. While Christchurch received only moderate rain, it was a different story further north. The heavy dumping drenched areas already battered by the storm at the end of the July, with more flooding, slips and resulting damage to farms and transport links (both road and rail).

Ben Tichborne