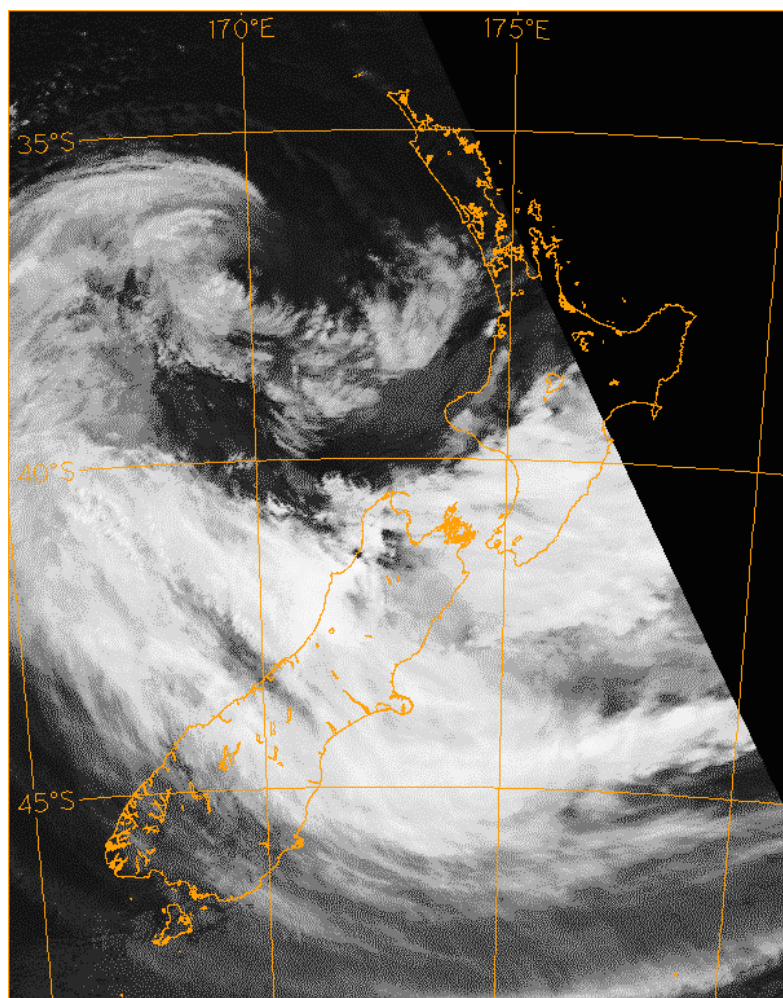


West Coast Regional Weather Event Ex Tropical Cyclone Ita 17 April 2014



Infrared image of the ex-tropical storm at 3.48 pm on 17th April.

Image courtesy of NIWA

Contents

Introduction	3
Description of Event.....	4
Buller District	8
Grey District.....	11
Westland District.....	13
State Highways.....	16
The Rural Community	17
Summary	18
References	19
Appendix 1	Metservice Weather Charts 20
Appendix 2	Westland Milk Products Milk Supply Graph 26
Appendix 3	Images 27

Introduction

This report is a compilation of information collected from the West Coast Regional Council, District Councils, Civil Defence Emergency Management, Westpower, Emergency services, Greymouth Star, Opus, New Zealand Transport Association, Buller Electricity, Westland Milk Products, Federated Farmers West Coast, West Coast Rural Support Trust, National Institute of Weather and Atmospheric Research and Metservice with the purpose of recording the extreme weather event, Ex Tropical Cyclone Ita, which affected the West Coast region on Thursday, April 17th 2014.

Ex Tropical Cyclone Ita's severe gale force winds caused extensive damage throughout the West Coast for a period of approximately 24 hours. Trucks and campervans were blown over, roofs were peeled off, whole suburbs, bridges, schools and roads were closed and power was cut too many homes and businesses. An estimated 20,000ha of forest was felled and significant damage done to a further 200,000ha causing the worst windfall damage in generations.

Whilst the event was forecast by Metservice in a series of severe weather forecasts issued regularly in the lead up to the event, the effect and extent of damage incurred was unforeseen. Thankfully there was no loss of life incurred. It was however, in the words of Buller District Mayor Garry Howard, "an event to remember."



Main Road, Franz Josef.

Photo courtesy of the New Zealand Transport Association

Description of Event

Severe Tropical Cyclone Ita was first identified over the Solomon Islands as a tropical low on April 1st, 2014. It then headed westward via Papua New Guinea and Queensland. As it moved away from Australia and on to New Zealand Severe Tropical Cyclone Ita transitioned into Ex Tropical Cyclone Ita.

An 'Extra (Ex) Tropical Cyclone' is a term used in weather advisories and tropical summaries to indicate that a cyclone has lost its "tropical" characteristics. Experts explain "the term implies both poleward displacement of the cyclone and the conversion of the cyclone's primary energy source from the release of latent heat of condensation to baroclinic (the temperature contrast between warm and cold air masses) processes." Significantly, cyclones can become extra tropical and still retain winds of hurricane or tropical storm force (National Weather Centre, Florida, 2014) which Ex Tropical Cyclone Ita did.

Severe weather warnings were issued on Wednesday April 16th for the event that reached the West Coast on Thursday April 17th, just prior to Good Friday and the Easter long weekend. The timing of this event resulted in response organisations, particularly Councils and Lines Companies, reporting a 30 percent reduction in availability of staff.

Regional Emergency Management Advisor, John Lovell summarises the lead up to the event in his debrief to the West Coast Civil Defence Emergency Management Group:

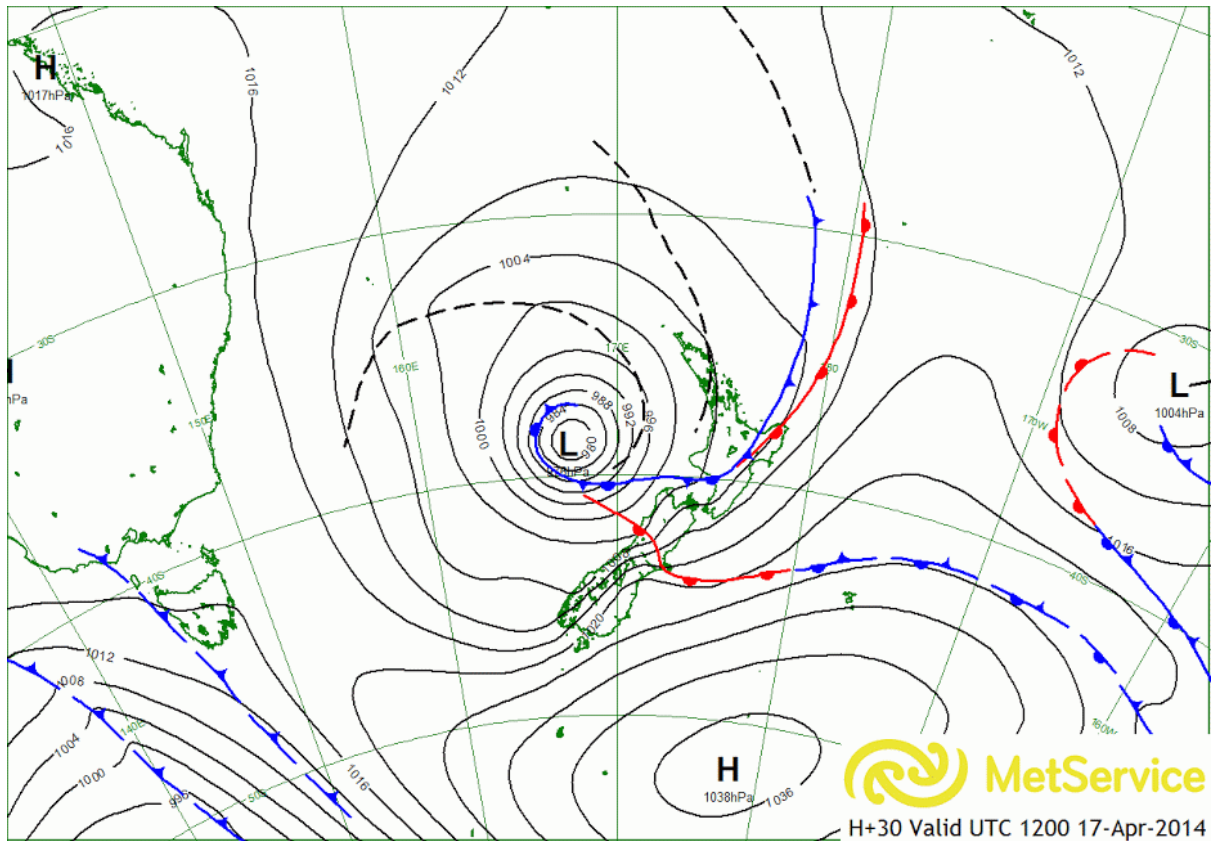
"On Wednesday 16th April at 10.10am a severe weather warning was issued for Buller and Westland, forecasting severe southeast gales developing Thursday morning, gusting to 140km/hour in exposed places between 6am and midnight Thursday. The warning indicated that these gales would have the potential to damage trees, power lines and unsecured structures, and would make driving hazardous. Further warnings issued on Wednesday and Thursday were consistent with the earlier warning, the only additional information being that winds would ease by midnight Thursday.

True to forecast, the south easterly gales hit Buller District first, building up from around 10am on 17th April and peaking in the afternoon with gusts in excess of 140km/hour. The winds moved further south throughout the afternoon, similar wind speeds being reported in Greymouth, Harihari and Whataroa. The south easterly direction of the winds was contrary to the prevailing west to northwest wind direction, thus compounding their impact."

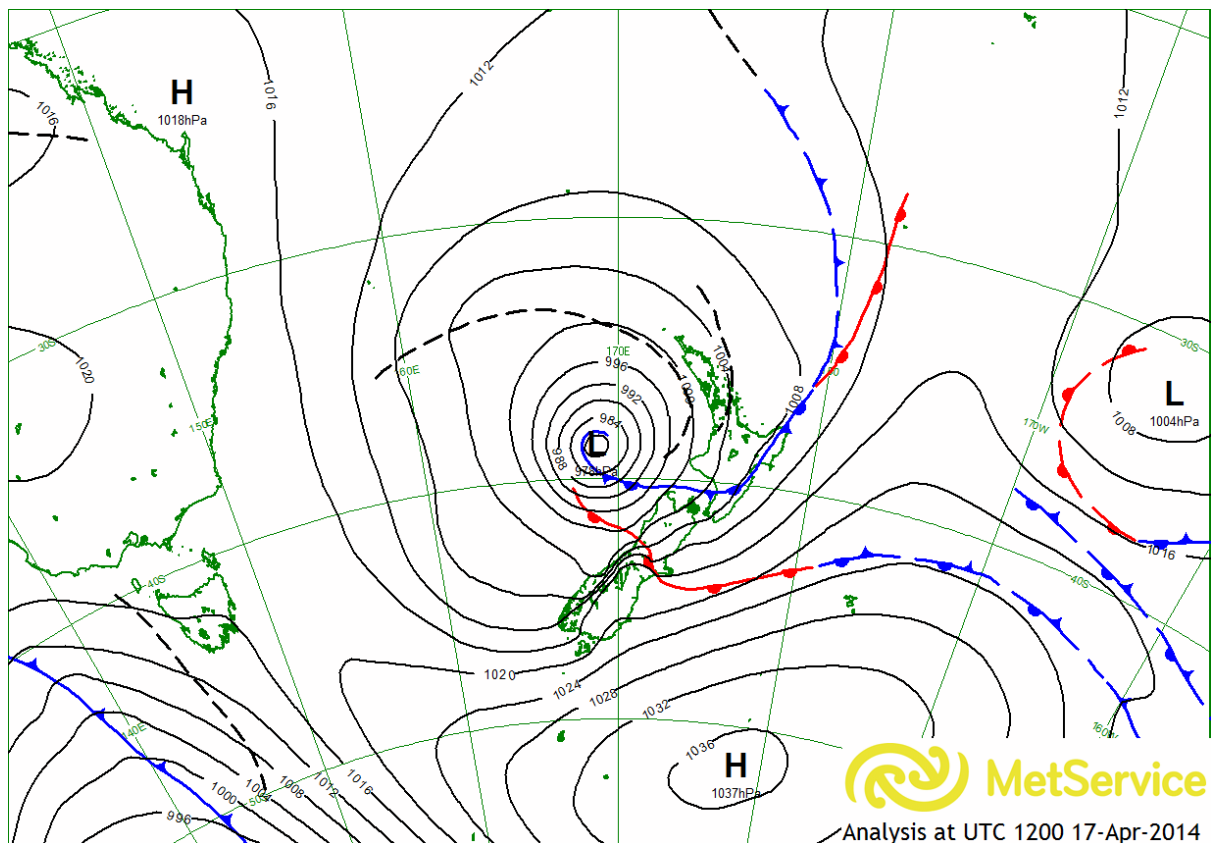
New Zealand's National Institute of Weather and Atmospheric Research (NIWA) advise that Ex Tropical Cyclone Ita was a very strong and powerful storm, comparable in intensity to the Wahine storm (Ex Tropical Cyclone Giselle) of April 1968 in which a Lyttelton-Wellington ferry sunk killing 50 people. Ex Tropical Cyclone Bola (March 1988) is also cited by NIWA as being comparable, however they note Bola was not as intense but was very slow moving.

Below are two MetService weather charts from Thursday 17th April, the first a prediction based on information the forecaster had 30 hours prior and the second an actual analysis based on observed information. MetService explains that "wind moves round a low in a clockwise direction, however over land it will often move more from High to Low pressure, so in this event although the isobars would suggest that the wind would be North to NE, it was actually more East to SE in Westport. While these charts give an indication of how strong the winds are, they cover a large area and winds in specific places will vary considerably, depending on where they sit in relation to valleys and the like. The forecasts on the 17th were for SE winds, rising to severe gale in exposed places. Gale winds have a mean wind speed of 62-74km/h, and Severe Gale is 75km/h to 88km/h. Gusts will be significantly higher than this."

Further weather charts showing the predicted and actual weather pattern leading up to, during and after the event are detailed in Appendix 1.



This H+30 chart is a forecast chart, it is valid for the same times as the Analysis chart below, but is based on information the forecaster had 30 hours before the validity time so is a prediction.



This analysis chart is drawn from observed information (weather stations, satellite, radar etc), and show what the situation actually looked like at the time.

Lasting approximately 24 hours, the cyclone began to subside in the early morning hours of Friday 18th April. As the extent of damage became apparent, discussions between authorities and retailers resulted in Ellery's, ITM and Mitre 10 Mega opening in the Grey District on Good Friday to provide supplies for the repairs. With rain forecast and roofs missing there was an urgent need for supplies to weather proof homes and businesses.

The damage to Westpower's network from this weather event was the equivalent of all customers being without power for a period of more than 7 hours. This is measured as 450 system minutes using the System Average Interruption Duration Index (SAIDI). By comparison the total network damage for the previous year was measured at less than 200 SAIDI.

Both Buller District Council and Grey District Council initiated roadside collection of the extensive green waste that was strewn around streets and properties. The armed forces assisted the clean-up in the Buller District with Mayor Garry Howard reporting that "On one day between the army and contractors some 400 truckloads of green waste were transported from our streets." Grey District Council also opened McLeans Pit landfill for free dumping of wind-blown debris.

The gale force winds felled an estimated 20,000ha of forest across the West Coast region. On June 26th 2014, Parliament passed 'The West Coast Wind Blown Timber (Conservation Lands) Act 2014' led by Conservation Minister Hon Dr Nick Smith. The legislation "allows the removal of timber from trees that were irreversibly damaged by Cyclone Ita from some public conservation lands on the West Coast of the South Island." The legislation has specific restrictions on end-use: only timber that will be processed into finished or manufactured indigenous timber products, sawn or cut wood (excluding firewood and wood chips), or other products specified by the Director-General in the authorisation, may be removed" (New Zealand Parliament, 2014). This legislation has been introduced for a period of 5 years.

The Insurance Council of New Zealand have provisional figures for the damage caused nationally by Ex Tropical Cyclone Ita of \$45.6 million dollars, the West Coast bore the brunt of this damage. Insurance Council Chief Executive Tim Grafton said "This is the most damaging storm of the year so far. Most damage was to home and contents with over \$25 million in losses followed by damage to commercial property at almost \$16 million and motor vehicles (\$2.7 million)" (Insurance Council of New Zealand, 2014).

By comparison the Greymouth Flood of 1984 cost \$10.36 million, the Greymouth Flood of May 1988 cost \$5.85 million and September 1988 \$24.21 million, and the 2005 Greymouth Tornado cost \$11.19 million (inflation adjusted figures as at 31/12/2011).



Flattened forest (Lyell-Radiant Range Conservation Area) above Karamea Highway. Taken from a helicopter in adverse weather conditions. *Photo courtesy of Solid Energy*



Damaged Cobden house.
Photo courtesy of the Greymouth Star



Damage to Harihari squash courts.
Photo courtesy of Westland District Council

Buller District

Westport, the main town in the Buller District, was struck particularly hard by Ex Tropical Cyclone Ita. Winds in the Buller District reached 127kph at their peak.

Buller Electricity began receiving fault notifications from 5.57am on April 17th. From early afternoon iron had begun lifting off roofs and by mid-afternoon all power had been lost along with the Vodafone network.



Collapsed brick wall, Westport.

Photo courtesy of Buller District Council

The District Council closed the main street of Westport and hotels were requested to close by 7.00pm to ensure people would get home safely in the daylight.

With the threat of impending rain the priorities became manpower, tarpaulins, generators and for some, water.

Buller District Mayor Garry Howard said “Communication was the key and we were fortunate to have full assistance of our local radio station plus Nikki Roche that kept website and social media updates. Civil Defence co-ordination was in full swing with hourly briefings from St Johns, the Fire brigade and Buller Electricity. We were very fortunate to have Solid Energy assistance with generators and TNL with tarpaulins.

As Mayor I travelled to all parts of the district affected and was able to see first-hand the problems. The feedback from my visits has been very positive along with the radio and media connection. While it was a disaster we did have some positives as a community to learn about civil emergency and nobody was killed or seriously hurt. We were dealing with the storm aftermath for three weeks before resuming to some sort of normality. A real strong community spirit came to the surface in adversity.”

Karamea resident Bevan Langford was pleased with the response from local Civil Defence “they worked really well and with good co-ordination”.

The last major power fault repair was completed more than 11 days later (269.5 hours) at 11.34am on April 28th.

Buller Electricity Limited estimate the total cost for restoration efforts at \$612,000. Tree damage was the most significant cause of outages. The company have also estimated that the lost load on the network as a result of the outage was 157 Megawatt hours (MWh's) giving a cost to consumers from the outage of \$3.14 million.

The cost of the event to the 31st May 2014 for Buller District Council was \$625,000.



Karamea Bluffs, Buller District.
Photo courtesy of Buller District Council



Damaged properties, Westport.
Photo courtesy of the New Zealand Transport Agency



Trees pulled from the ground by the gale force winds in Westport.
Photo courtesy of Buller District Council



Westport's New World Supermarket using a transport truck to secure their premises.

Photo courtesy of Buller District Council



Power poles and lines damaged, Buller District.

Photo courtesy of Buller Electricity

Grey District

As Ex Tropical Cyclone Ita moved south, Greymouth was hit hard. The Greymouth suburbs of Blaketown and Cobden were extensively damaged with 39 houses left uninhabitable. Both suburbs were closed off by Emergency Services due to the danger of flying debris. A peak wind gust of 148 kph was recorded at Rapahoe (11 kilometres north of Greymouth) by Weather Recorder Peter Ewen. Estimated peak wind gusts in Cobden and Blaketown were between 160-170kph. Due to these huge wind gusts the Cobden Bridge was closed at 12.25pm on Thursday April 17th and reopened at 5.57am on Friday April 18th. Welfare centres were set up in both Greymouth centre and the Cobden suburb to accommodate those families and people unable to remain in their homes or unable to travel home due to road and bridge closures.

The entire suburb of Blaketown lost power overnight on Thursday April 17th as well as Cobden. Many households had power restored that evening or within 24 hours of the storm abating.

Throughout the greater Greymouth area over 60 houses lost roofs and 5 commercial buildings were deemed uninhabitable.

One of these businesses, R & N Trading, lost the roof on their commercial premises early Thursday evening. A suspended ceiling then fell in on stock which had to be cut away making the removal of stock an arduous job. The owners estimate a third of their stock was lost. The following three weeks was spent cleaning and sorting the stock that was able to be saved. They were very thankful for immediate access to storage and the assistance of a Toll Rail truck that “just turned up” ready and willing to help them.



Greymouth Band Hall, Blaketown.
Photo courtesy of the Greymouth Star

Dairy farmers in Rotomanu and Inchbonnie also suffered power loss due to trees falling on the lines. The dangerous conditions and extreme winds made power restoration extremely difficult. Westpower General Manager - Assets & Engineering Services Rodger Griffiths noted this windstorm event was “the worst Westpower have experienced in at least the last 30 years”.

Grey District Mayor Tony Kokshoorn said “The West Coast has experienced high winds from time to time with the destructive force of Cyclone Ita being no exception. Over the last 10 years three major storm events have caused havoc in the Grey District:

- A Tornado cut through Greymouth in 2005 causing damage costing over \$10 million dollars to repair.
- Easterly winds gusting up to 150km per hour removed many roofs in 2008. Fire Brigades responded to well over 200 callouts.
- Again 150km per hour easterly winds from Cyclone Ita caused widespread damage. Fire Brigades responded to over 500 callouts in the Grey District.

During the storm the resilience of West Coasters was very evident. Emergency services and the wider public mobilised quickly to help those affected. Help came from everywhere and although a state of emergency was not declared during the storm, the Civil Defence procedures were put in place in order to control and co-ordinate the post disaster response.

Today the clean-up after Cyclone Ita is still continuing but we can be proud of the community spirit which is evident when adversity comes our way.”

NIWA advise that; “In July 2008 Greymouth experienced a severe downslope easterly storm that caused damage to houses mainly in the Cobden region, the peak gust at Greymouth Aero was 104 km/h then, but for April 17 the peak gust was 142 km/h, but much stronger gusts would have been likely in Cobden and Blaketown due to the channelling effect of the Grey River gap. NIWA conducted damage surveys for both events, and preliminary results suggest the April 2014 event was much more severe and more widespread than that of 2008.”

Grey District Council report that the cost of the event up to May 31st 2014 was \$361,000, with the cost at the end of June \$391,000. Volunteer labour has reduced these costs however there are significant repair costs still to be finalised.



Damaged Greymouth Aerodrome Hanger.
Photo courtesy of the Greymouth Star

Westland District

At 9.37am on Thursday 17th April, ten reinforced concrete power poles in Whataroa were reported down, snapped off by the gale force winds. Shortly after this both a truck and campervan were blown off State Highway 6 between Harihari and Franz Josef. Vehicles became trapped by fallen trees and debris and a police officer reported his rear windscreen being blown in as he went to investigate the incidents.

Westland's main town of Hokitika escaped the brunt of the winds. However inland areas of Kowhitirangi, Ross, Harihari and Whataroa all suffered damage and by 10.40am on Thursday 17th April the road from Ross through to Franz Josef had been closed and was unable to fully reopen until 6.10am on Friday 18th April.

South Westland Area School and Whataroa School were both closed.

The Whataroa area sustained loss of roofs, fences, damage to farm buildings, loss of shelter belts and grass pastures. Dairy farmers relied on shared generators to get cows milked with one farmer reporting "crawling on all fours to get across the track to shift the cows" due to wind gusts.

Power was restored to the township of Franz Josef on the evening of Saturday April 19th and Fox Glacier on Monday April 21st. The restoration of power in Whataroa was completed on Tuesday April 22nd, 5 days after the weather event.

The Westland District suffered significant damage to its forests particularly in Harihari and Whataroa where large areas of trees were felled by the gale force winds.

Based in Whataroa, Civil Defence Co-ordinator Wayne Nolan said most of the damage was done over Thursday night and conditions were "the worst in living memory. Even though it was the most stressful time I have ever experienced my hat goes off to the people of our District who rallied together to quickly bring normalcy back to our area."

A number of Department of Conservation tracks were closed following the event and began reopening as the weather event abated and staff were able to check them in the days following.

Westland District Mayor Mike Havill said "the scars from Ita will remain for a long time in the Westland District rural areas of Kokatahi-Kowhitirangi, Ross, Harihari and Whataroa. Some hillsides had the foliage stripped, thousands of hectares had stands of forest flattened, along with widespread damage to property. Rural communities were without power for days and it took a co-ordinated effort to share generators and dairy sheds to allow farmers to continue the milking season."

Mayor Havill praised community volunteers and service providers "volunteers and service providers worked in extreme conditions to minimise damage to property and people and restore power and communications. Their commitment to safety was a major factor in there being no fatalities in a weather event described as "unreal". Thanks to all those who had helped (along with the Army Engineers) with the clean-up."



Campervan blown off the road at Whataroa, South Westland.

Photo courtesy of Westpower Limited



Trees uprooted at Ross, South Westland.

Photo courtesy of New Zealand Transport Agency



Overtuned truck, Westland.

Photo courtesy of Westpower



Road slip, South Westland.

Photo courtesy of Westland District Council



Felled trees crushed and killed stock and damaged fences allowing stock to escape.

Photo courtesy of Federated Farmers West Coast

State Highways

The first section of State Highway 6, Harihari to Whataroa was closed at 9.45am on Thursday April 17th. Further sections closed throughout the day as Ex Tropical Cyclone Ita made West Coast State Highways 6, 67, 73 and 7 impassable in places due to fallen trees, slips, power lines and wind strength.

Opus International Consultants issued a “general strong wind warning for all West Coast State Highways about 8.00am on April 17th. There was extensive damage to road furniture throughout Region 12 with many signs blown down or broken. Many areas of edge marker posts were completely wiped out.”

They reported that the suspension bridge at the Karangarua River, South Westland, was badly affected, swinging alarmingly in the wind. Many of the suspension hangers were damaged, hanger clamps moved and kerb blocks displaced. A weight restriction of 20 tonnes (increased to 25 tonnes after initial repairs) and night time closures were imposed whilst emergency repairs were carried out. Night time closures and the weight restriction continued until all the hanger repairs were completed on April 30th.

Trees were blown down in many areas across the entire state highway network with some particularly bad areas in the Rahu on State Highway 7, Four Mile Junction to Wilsons Lead Road on State Highway 6 and through Kumara Bush on State Highway 73. The most extensive problems were arguably in the southern area from Ross to Fox Glacier where, as well as many trees being down, several campervans and a truck were blown over and power lines were blown down, some across the highway.

Opus estimate the overall rough order cost for the initial clean-up and remedial works following Ex Tropical Cyclone Ita is \$1,200,000 (including fees, consents and some contingency).



Damaged powerlines, South Westland.

Photo courtesy of Westpower

The Rural Community

The rural community of the West Coast were severely affected by Ex Tropical Cyclone Ita.

Approximately 250 of Westland Milk Products 394 West Coast suppliers suffered major disruption to their farming operation. 125 suppliers lost power. Significant damage was sustained to buildings and equipment. Stock escaped due to damaged fencelines, pasture cover was radically reduced with the wind literally cutting grass, and cows were reported to be killed by falling trees.

Katie Milne, Federated Farmers West Coast President, reported that “many sheds and houses suffered damage. To date there are still a number of calf sheds to be replaced or repaired so the calves can have shelter during calf rearing season which has just started, their survival depends on good shelter.”

Westland Milk Products reported a significant drop in milk production following Ex Tropical Cyclone Ita. The graph in Appendix 2 shows the drop in production and the length of recovery afterwards.

A loss of milk solids, as a result of farmers having to dry their herds off early, has been compounded by a drop in pay-out. Taane Johnsen, Milk Supply Manager at Westland Milk Products noted “Farmers who were enjoying what appeared to be a bumper season are now left with the added cost of repairs meaning that upgrades and planned item replacements will now need to be left for another year.”

The West Coast Rural Support Trust visited affected rural areas following Ex Tropical Cyclone Ita to identify immediate needs. The Trust is “part of a nationwide network of Rural Support Trusts that can assist rural individuals and communities during and after extreme weather and other declared adverse events” (West Coast Rural Support Trust). They identified an imminent danger as farmers began to clear felled trees, the danger of wind throw posed a real risk to lives if not handled properly. The Trust organised experts to come in and demonstrate to local farmers how to safely and effectively clear these trees. They also assisted South Westland communities in rallying the New Zealand Army to assist in the clean-up, supplied food parcels where needed in Harihari and Whataroa, held barbeques to bring communities together and offered counselling.



Damage to a dairy shed and farmbike.

Photo courtesy of Westland Milk Products

Summary

Ex Tropical Cyclone Ita left a significant and lasting effect on the West Coast region. The images contained in this report endeavour to show the reader the magnitude and severity of this weather event that affected the West Coast region.

Each District sustained differing levels of damage, however all three Districts suffered substantially, whether it was damage to residential housing, commercial buildings, forestry, farm land, parks and recreation areas, or infrastructure.

The learnings from this event identify that response and recovery are important for both response organisations and individuals to ensure an even more effective and efficient Civil Defence Emergency response in the future.

The resounding message from community leaders was that even with reduced staff available to response organisations, West Coast residents faced these adverse conditions with selflessness, strength, proficiency and kindness. No doubt the tireless work that each and every person involved undertook throughout that Easter long weekend, helped ensure that our region suffered no loss of life as a result of Ex Tropical Cyclone Ita.

Thank you to the organisations and individuals that supplied images and commentary to enable the compilation of this report.

Report compiled by Anita Gillespie on behalf of the West Coast Regional Council.



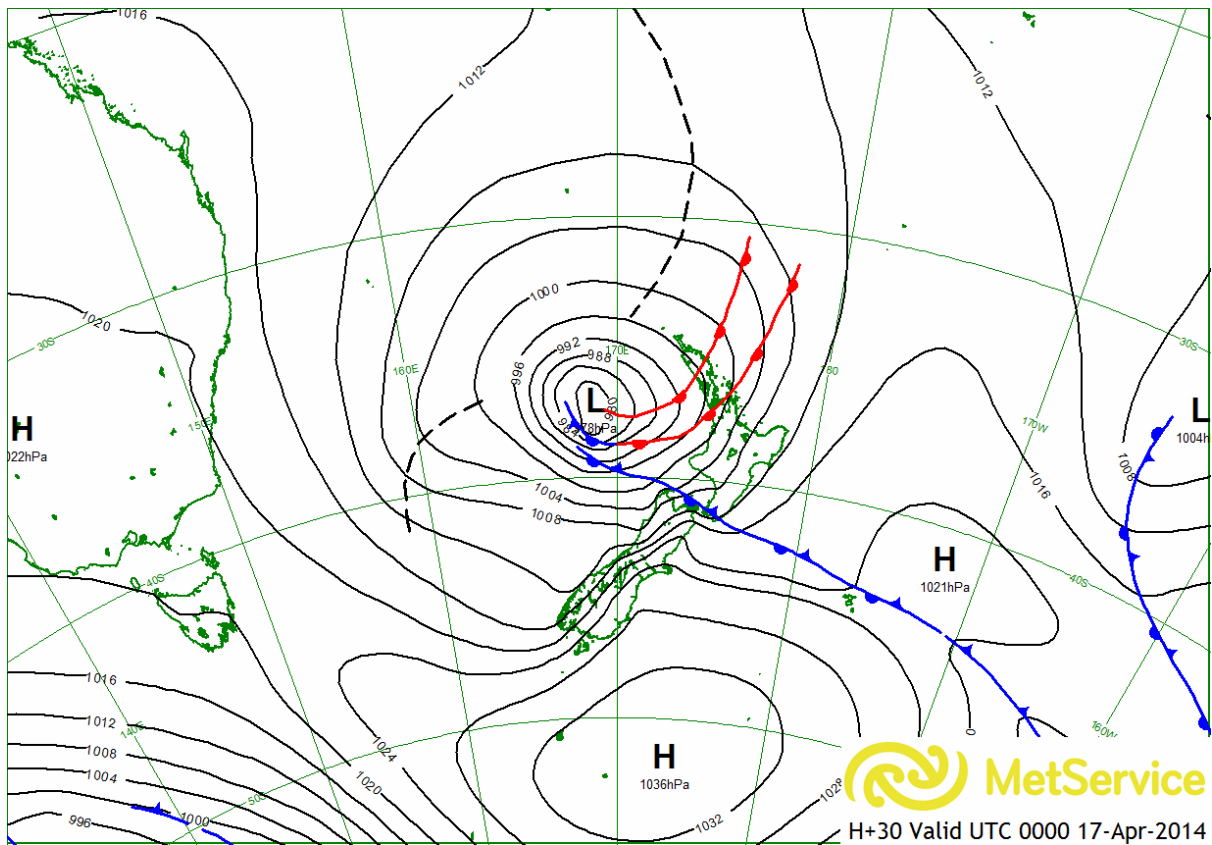
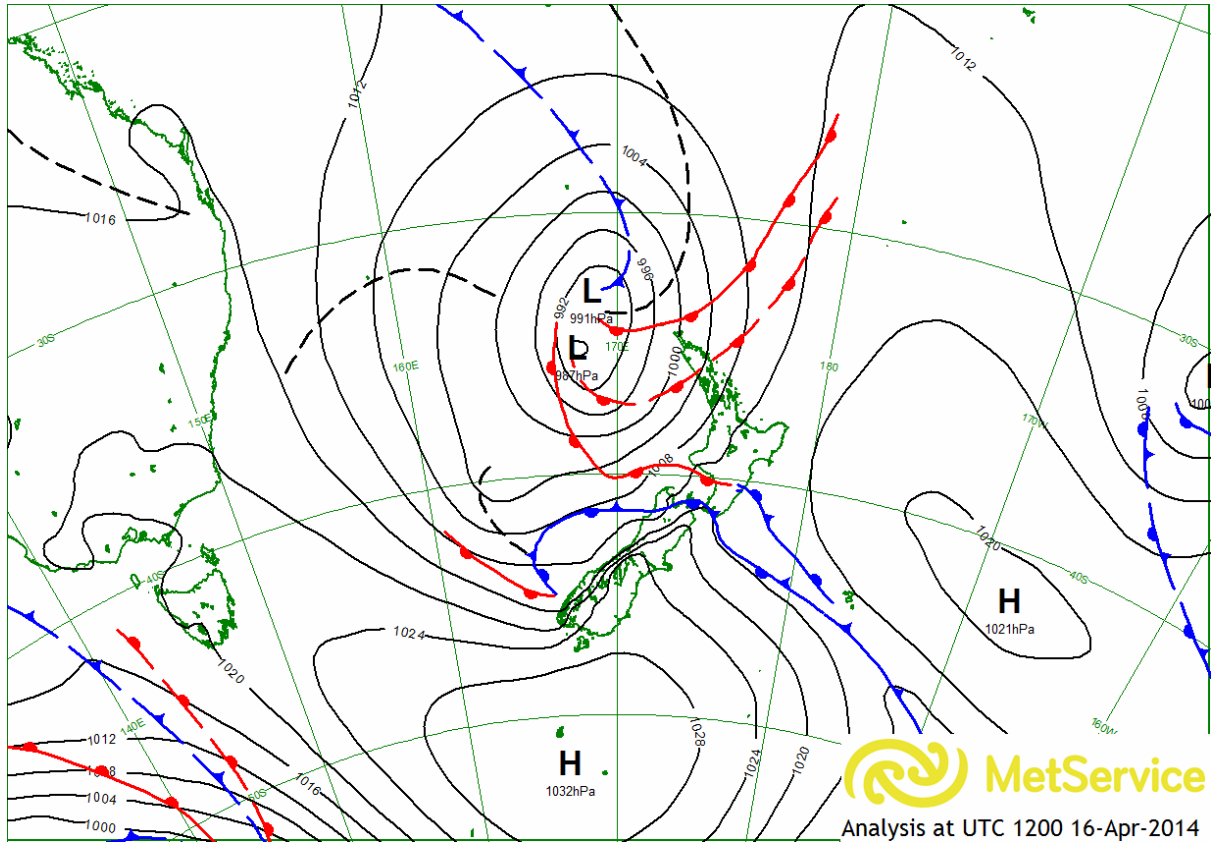
Westport clean up.

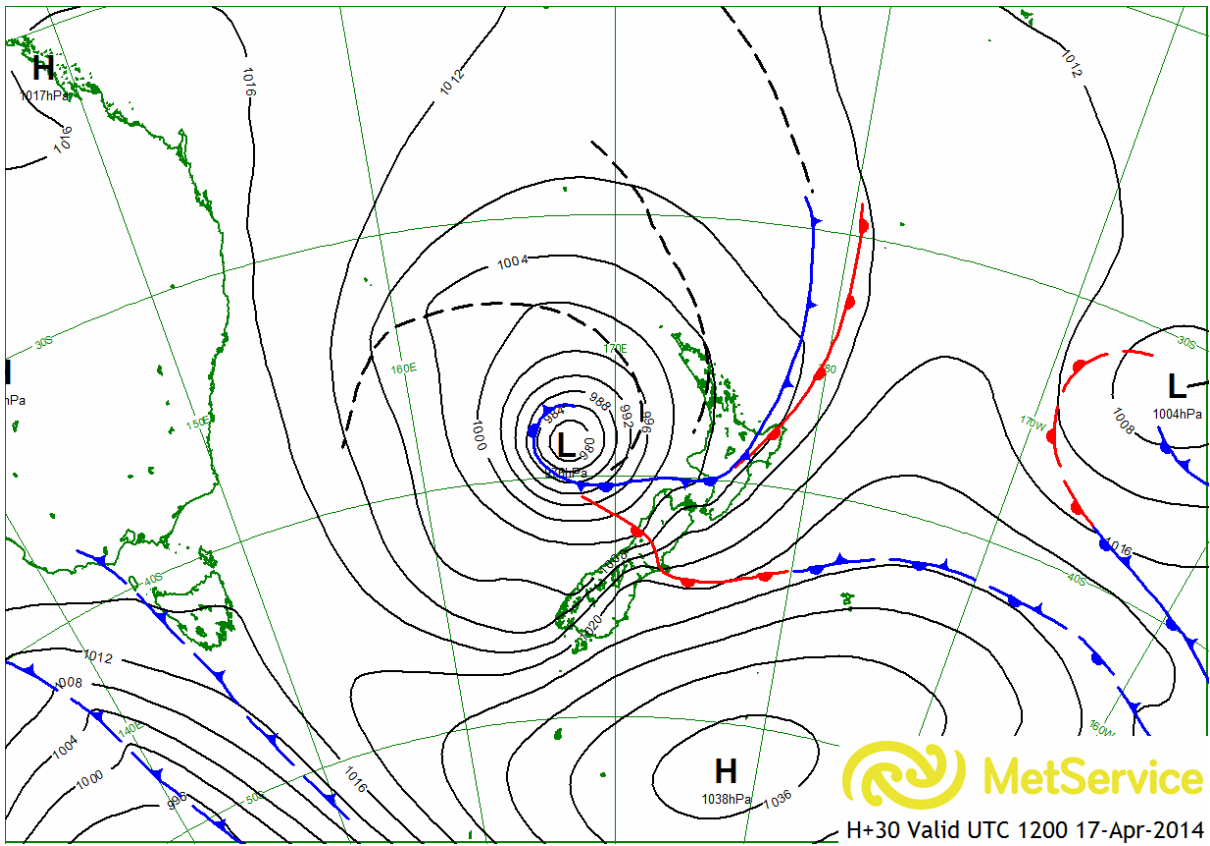
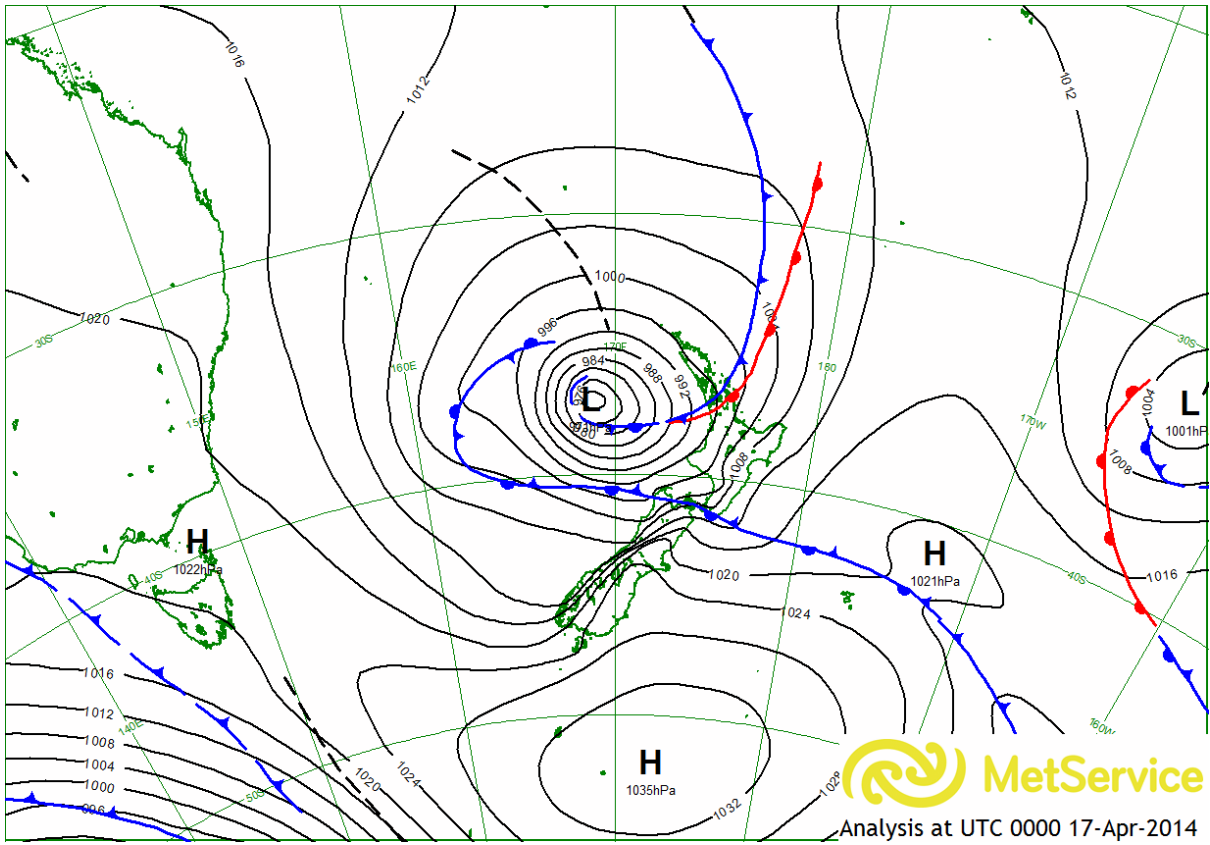
Photo courtesy of the Buller District Council

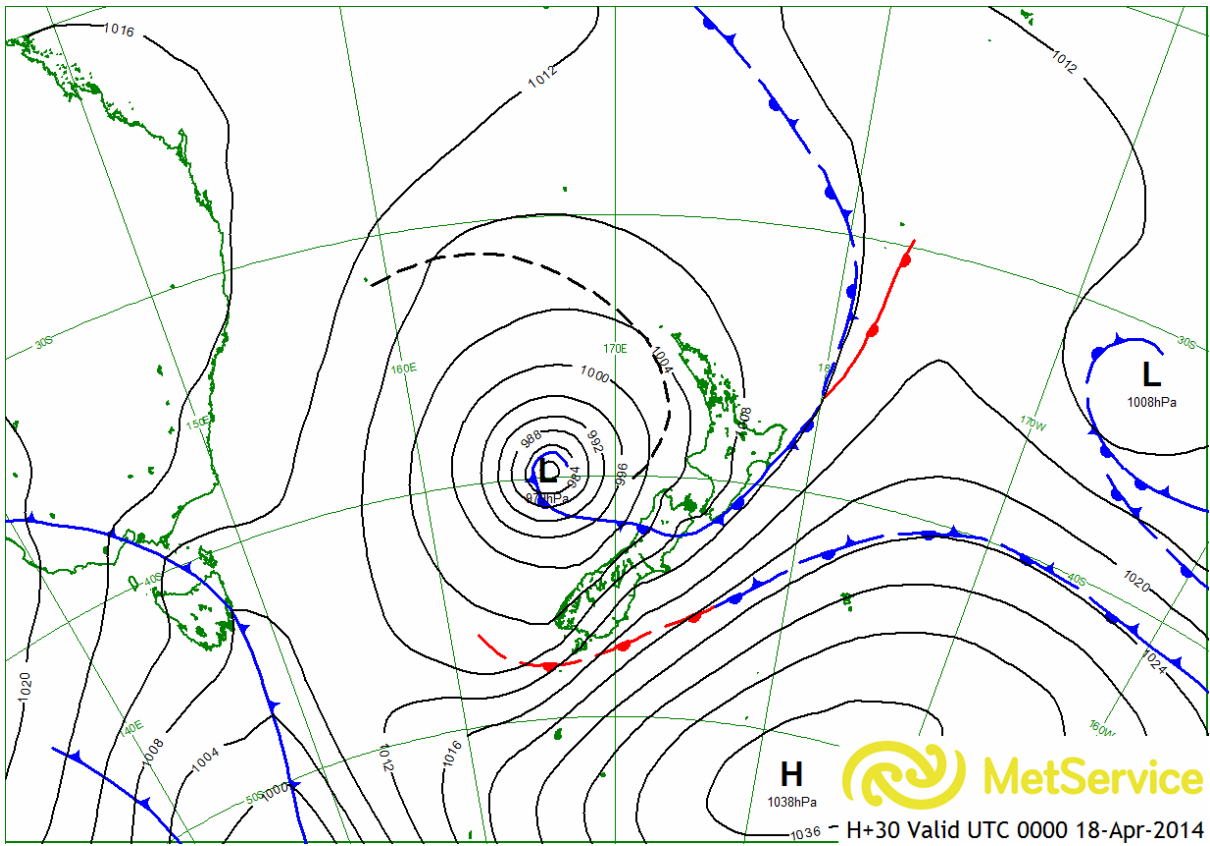
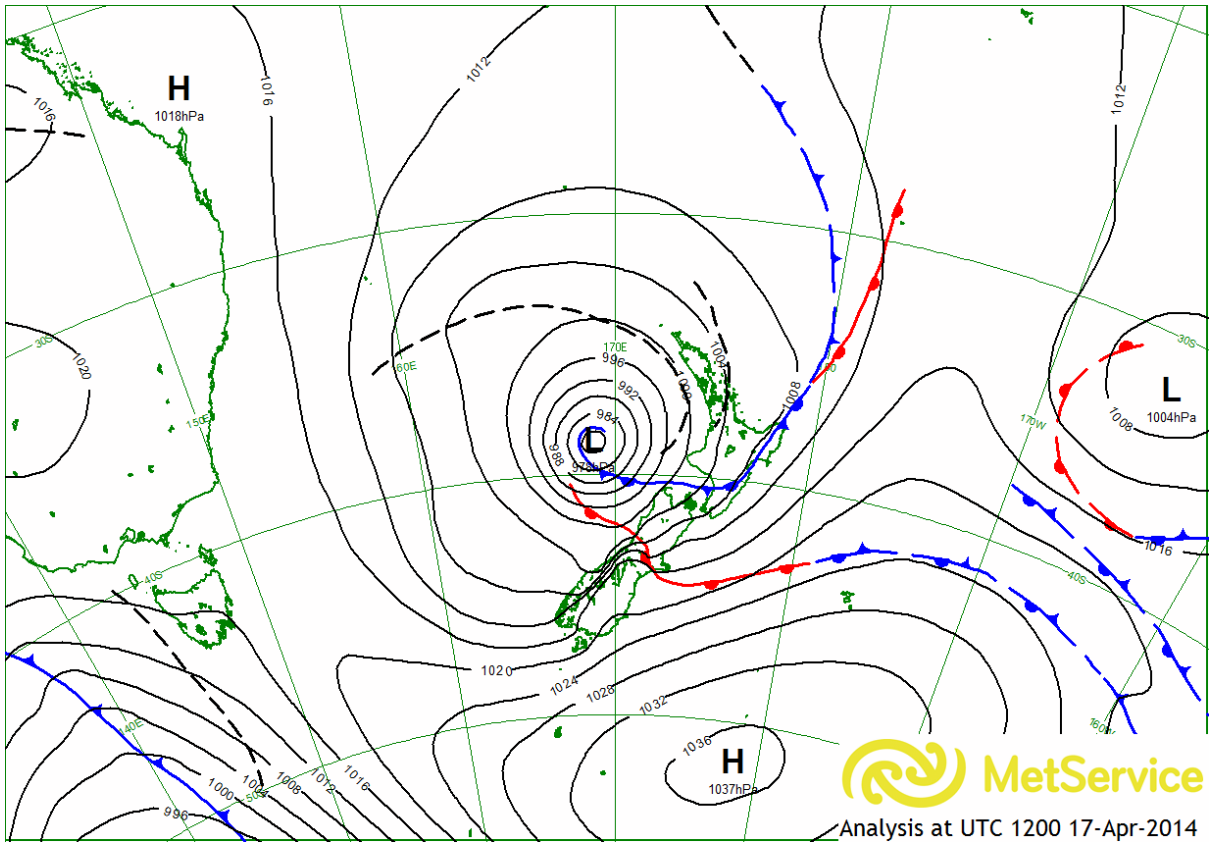
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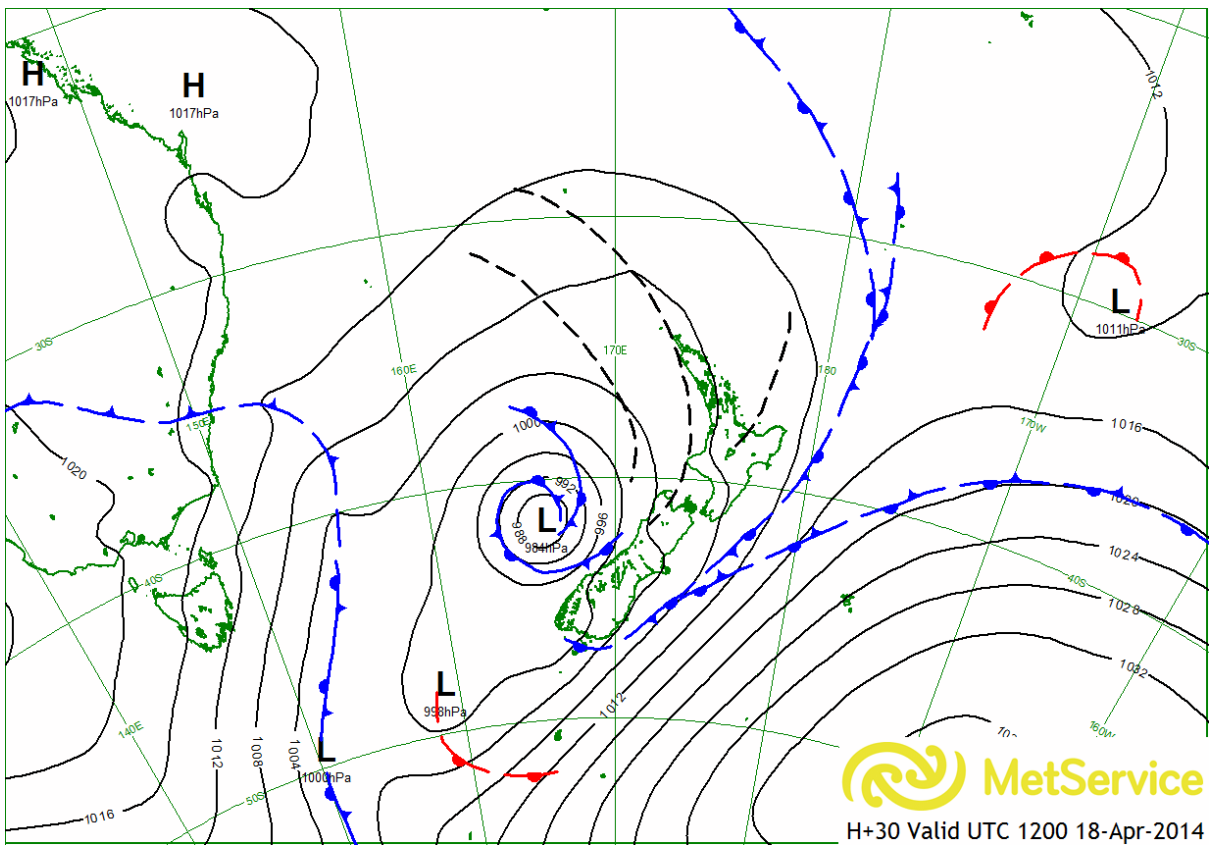
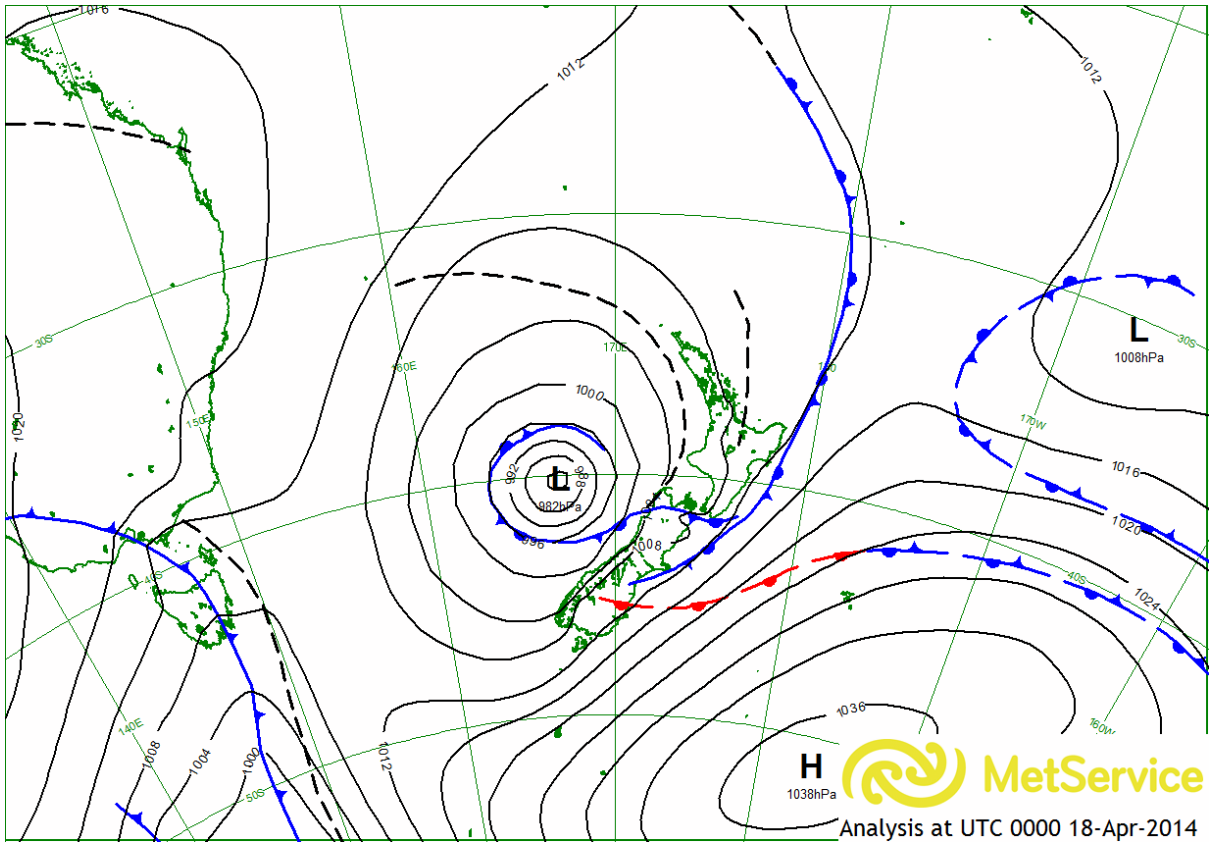
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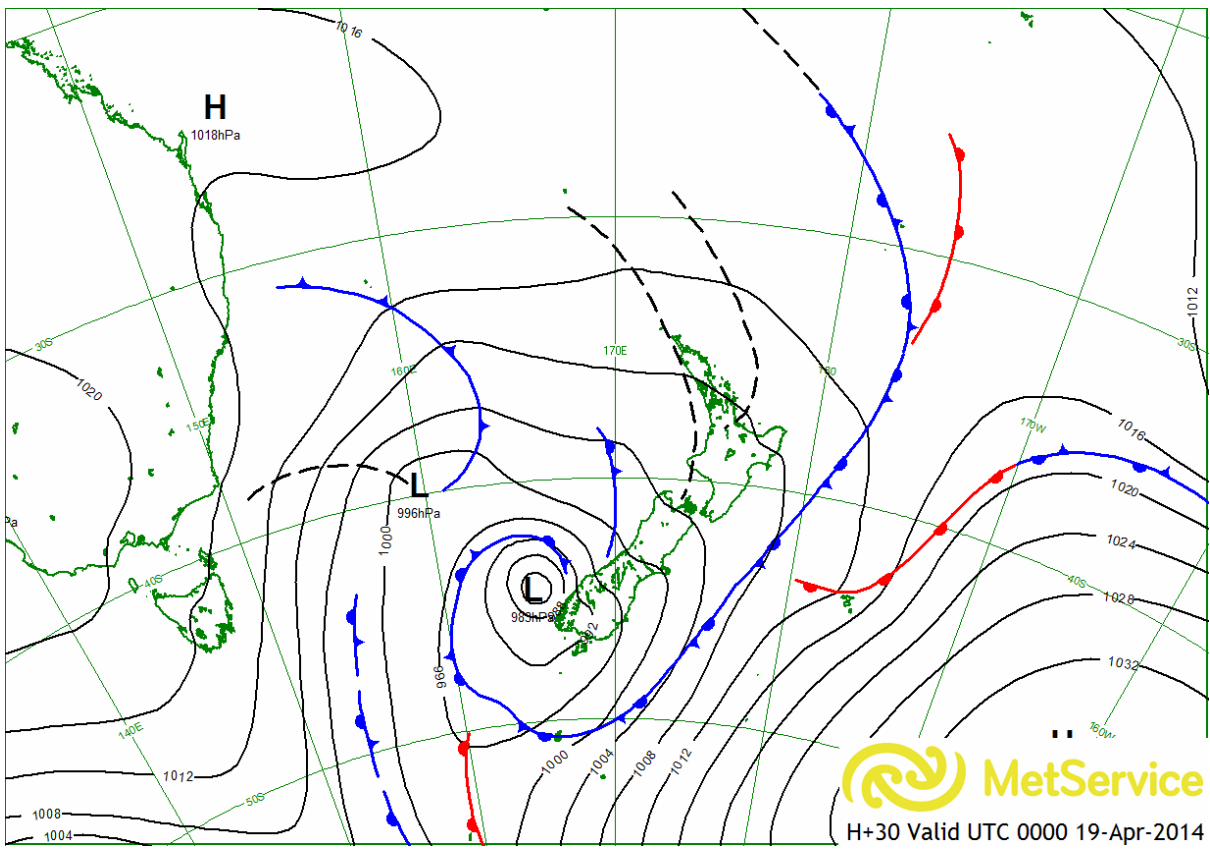
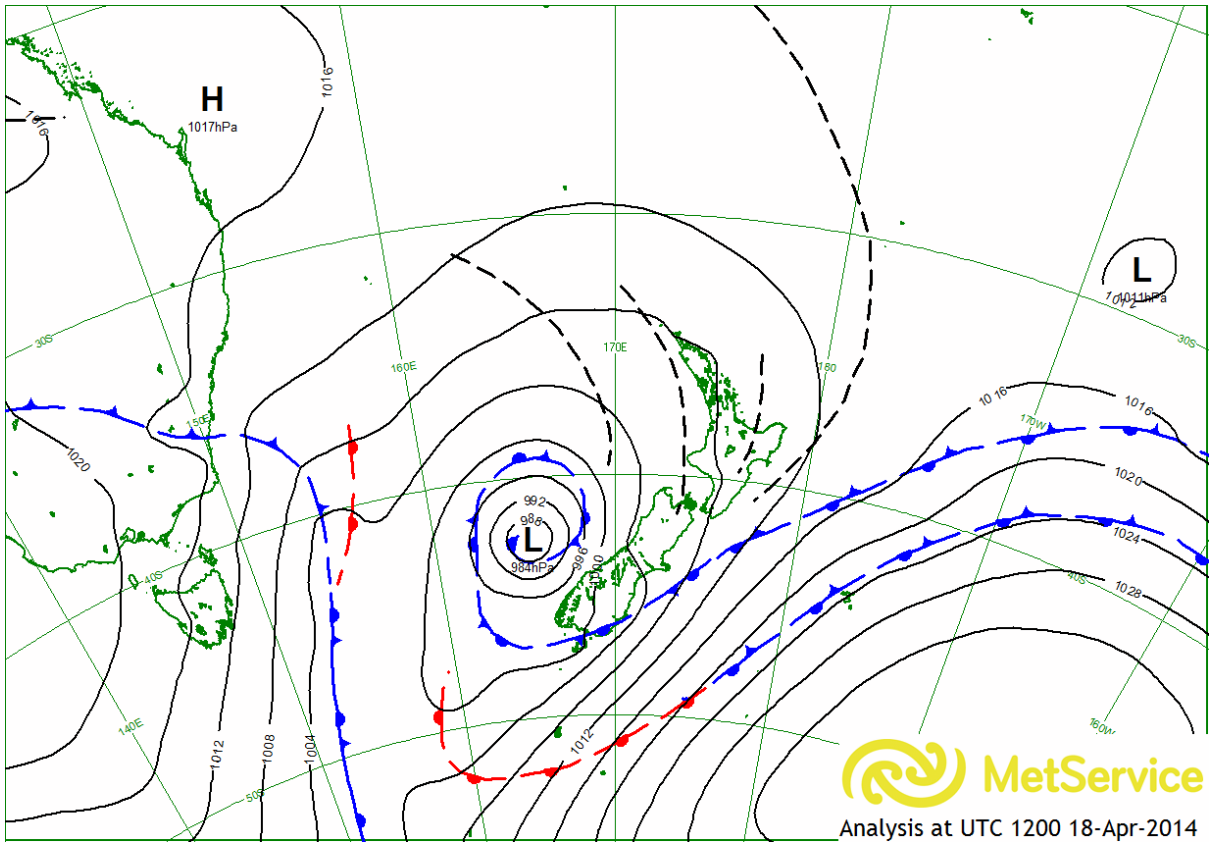
Appendix 1

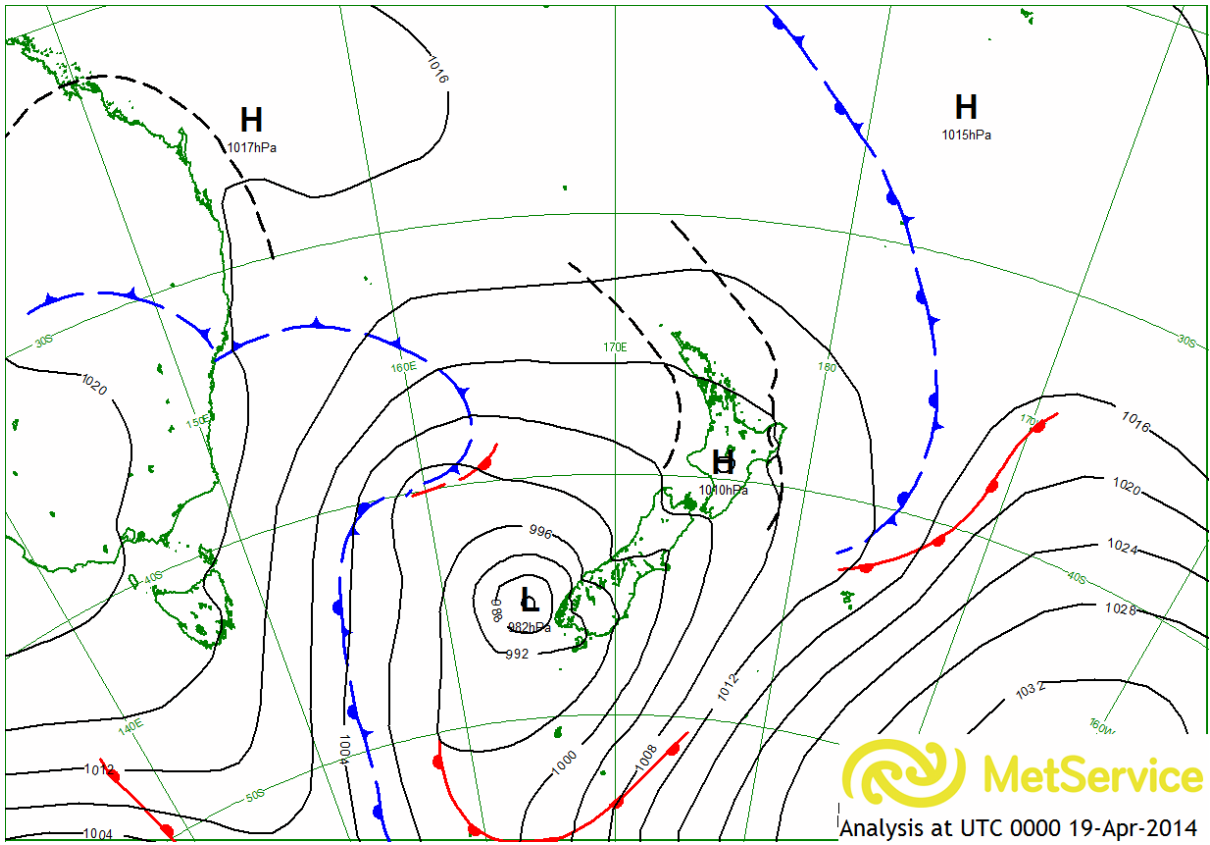




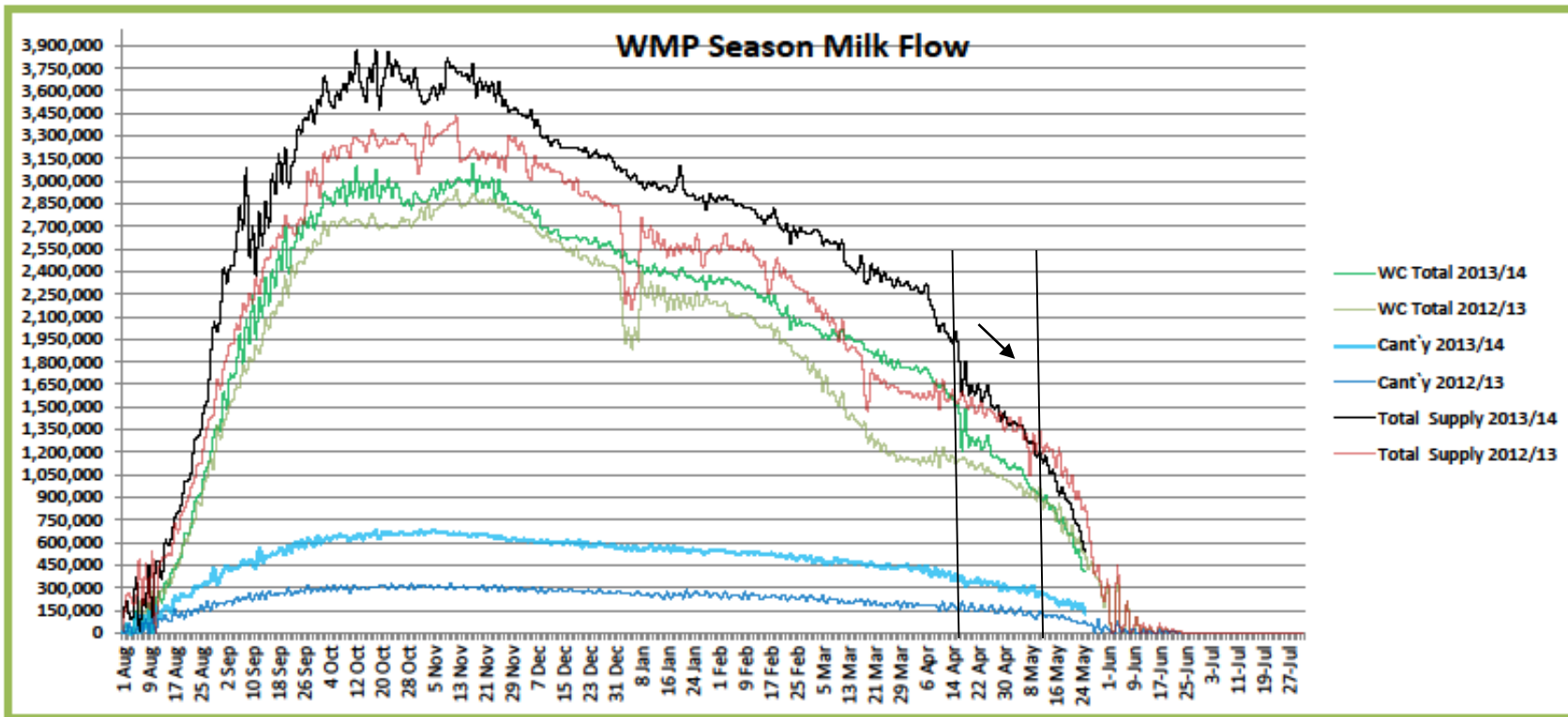








Appendix 2



Date	25/05/2014	WMP West Coast Supply				WMP Total Shareholder Supply				
		2013/14	2012/13	Difference	Change		2013/14	2012/13	Difference	Change
	2 DA	416,850	535,800	-118,950	-22.20%	2 DA	577,600	606,980	-29,380	-4.84%
	10 DA	620,098	664,510	-44,412	-6.68%	10 DA	806,448	752,583	53,865	7.16%
	MTD	20,975,060	20,555,110	419,950	2.04%	MTD	26,953,820	23,342,260	3,611,560	15.47%
	STD	605,565,550	548,193,766	57,371,784	10.47%	STD	748,005,993	614,755,686	133,250,307	21.68%
	WMP Canterbury Supply					Total Wholemilk Supply (includes DIRA)				
	2 DA	160,750	71,180	89,570	125.84%	2 DA	577,600	828,985	-251,385	-30.32%
	10 DA	186,350	88,073	98,277	111.59%	10 DA	806,448	995,293	-188,845	-18.97%
	MTD	5,978,760	2,787,150	3,191,610	114.51%	MTD	26,953,820	29,265,930	-2,312,110	-7.90%
	STD	142,440,443	66,561,920	75,878,523	114.00%	STD	764,885,779	665,077,032	99,808,747	15.01%
						DIRA Milk				
	Permeate Out	MTD	0	STD	14,147,340	DIRA - MTD	0	5,923,670	-5,923,670	-100.00%
	Cream	MTD	1,099,857	STD	4,514,667	DIRA - STD	13,189,547	50,321,346	-37,131,799	-73.79%

Appendix 3



Damage and clean up in South Westland.

Photos courtesy of Westpower





Disintegrated powerpole, South Westland.

Photos courtesy of Westpower



11000 volt power wires across a farmers fence.

Photos courtesy of West Coast Federated Farmers



Roof damage to the Whataroa Motel.

Photos courtesy of NZTA



Westfleet site building blown into the Grey River.

Photos courtesy of Greymouth Star



Massive private stand of mainly Totara trees that were devastated by the cyclone.

Photos courtesy of West Coast Federated Farmers



Cars trapped by felled trees, Buller District.

Photos courtesy of Westpower