

# **YUKON SNOW SURVEY BULLETIN & WATER SUPPLY FORECAST**

**March 1, 2012**

Prepared and issued by:  
Water Resources Branch  
Environment Yukon



## PREFACE

The Yukon Snow Survey Bulletin and Water Supply Forecast is prepared and issued three times annually - after March 1, April 1 and May 1 - by Environment Yukon's Water Resources Branch. The bulletin provides a summary of winter meteorological and streamflow conditions for Yukon, as well as current snow depth and snow water equivalent observations for 56 locations. This information is used to make projections of total volume runoff for the summer period, and an estimate of peak flow for the main river basins and sub-basins including the: upper and lower Yukon, Pelly, Stewart, Liard, Alsek, Porcupine and Peel Rivers. Information about the bulletin, snowpack conditions or streamflow projections can be obtained by contacting:

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### NETWORK CHANGES for 2012

As of May 2010, snow surveys are no longer conducted at Clay Creek, Profile Mountain, Duke River or Arrowhead Lake. This bulletin can now be accessed on the web at:

[http://environmentyukon.gov.yk.ca/monitoringenvironment/snow\\_survey.php](http://environmentyukon.gov.yk.ca/monitoringenvironment/snow_survey.php)

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It is recommended that reference to this report be made in the following form:

Yukon Snow Survey Bulletin and Water Supply Forecast  
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Government of Yukon  
Box 2703, Whitehorse, Yukon Y1A 2C6

# ACKNOWLEDGMENTS

The Yukon Snow Survey Bulletin and Water Supply Forecast is published three times annually; after March 1<sup>st</sup>, April 1<sup>st</sup>, and May 1<sup>st</sup>. The Bulletin forms part of the Yukon Snow Survey Program administered by the Water Resources Branch, Department of Environment, Government of Yukon.

Other agencies that contribute significantly to the Snow Survey Program by providing data, assistance and information for the bulletin are:

Meteorologist, Wildland Fire Management, Yukon Department of Community Services, Whitehorse

Officer in Charge, Water Survey of Canada, Whitehorse.

Agencies cooperating with Environment Yukon in the Snow Survey Program are:

Client Service and Inspections Branch, Yukon Department of Energy Mines and Resources

Information Management and Technology, Yukon Department of Environment

B.C. Ministry of Environment, Water Stewardship Division

USDA Natural Resources Conservation Service

Yukon Department of Highways and Public Works

Parks Canada

Yukon Energy Corporation

# YUKON TERRITORY SNOWPACK CONDITIONS AND RUNOFF PROJECTION

## WEATHER

Winter has been mild this year with temperatures above normal throughout Yukon. The largest anomalies were found near Blanchard, Watson Lake and Mayo with temperatures close to four degrees above normal. No area in the Territory reported temperatures below normal. Precipitation levels were a little above normal for much of the Yukon, but were below normal along the western border; in parts of the north; and in the southeast. There were also well above normal precipitation levels in a band from Blanchard to Whitehorse and in a band from Drury Creek to Mayo.

### October

Temperatures were two to four degrees above normal to the north of 63 degrees of latitude. Farther south, temperatures ranged from near normal to two degrees above normal. Precipitation levels were generally below normal. The exceptions were from Swift River to Ross River to Drury Creek where levels were a little above normal and at Whitehorse where precipitation was 142 percent of normal levels.

### November

November was a cold month with temperatures generally two to five degrees below normal. The coldest area was across Eagle Plains and northward where the mean monthly temperature was near -26C. This same area received only half of the normal November precipitation. Most other areas received above normal precipitation with Whitehorse showing the largest anomaly at 260 percent of the normal amount. Carcross and Drury Creek also received more than double the normal amount of precipitation for November.

### December

December temperatures were all well above normal and in many areas five to eight degrees so. At Haines Junction, the temperature anomaly was eleven degrees above normal. With a few exceptions, precipitation amounts were also well above normal. In the Dawson area, there was double the normal amount of precipitation. There was below normal precipitation near the BC border at Carcross and Watson Lake, while between them, at Teslin, there was above normal precipitation.

### January

Temperatures in the Beaver Creek area were close to four and a half degrees below normal. Some areas in the northern half of the Territory were also three degrees below normal. Everywhere else, temperatures were near normal to three degrees above normal. Precipitation levels also showed considerable variation. Near the Alaskan border and in parts of northern Yukon, levels were below normal. At Beaver Creek there was only fifteen to 20 percent of normal amounts. Whitehorse, however, received 252 percent of normal precipitation, but it was not widespread; Carcross received 109 percent of normal and Teslin only 85 percent of normal precipitation. In general all other areas received above normal precipitation.

### February

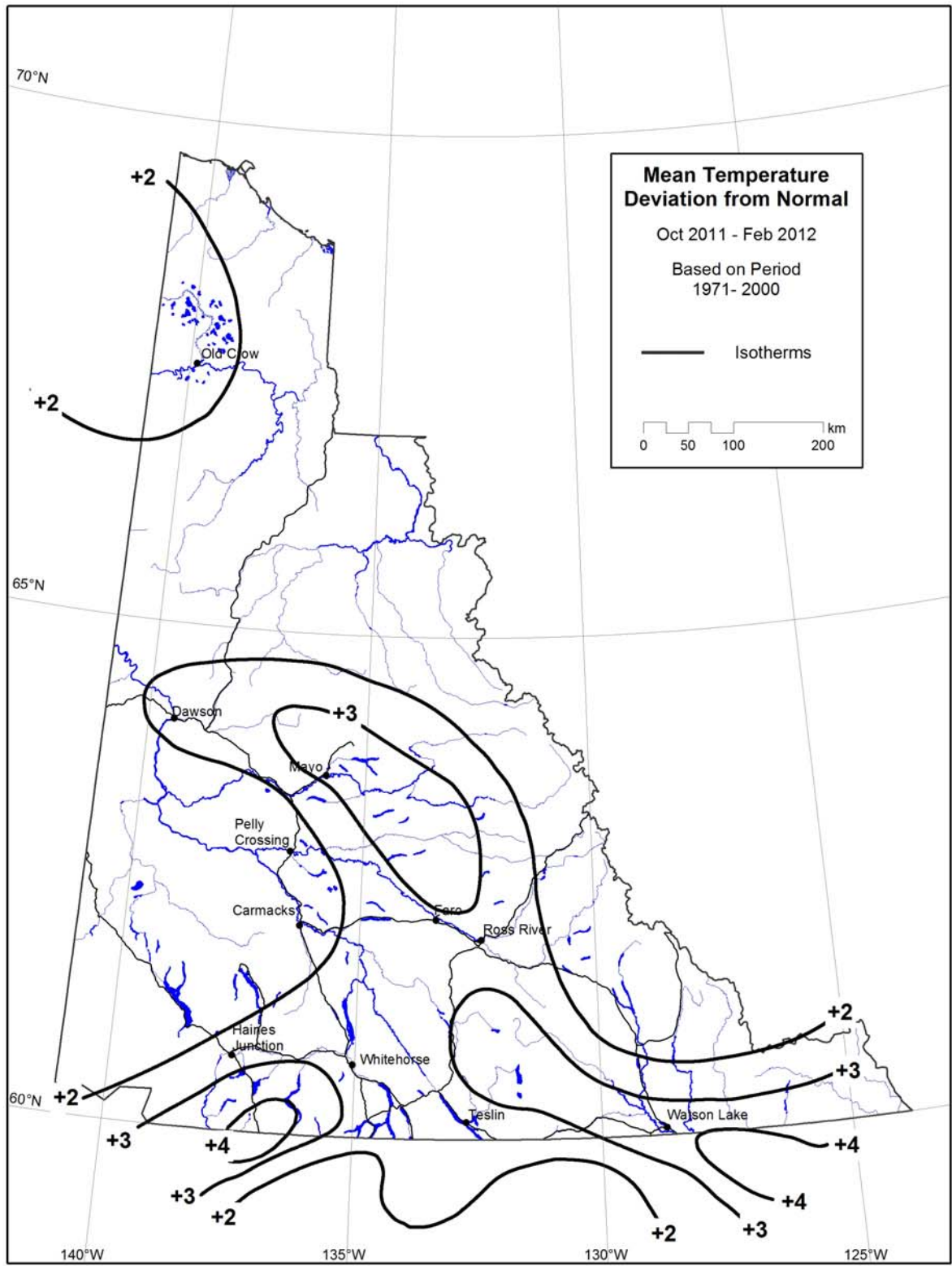
February was mild with temperatures five to nine degrees above normal. From Blanchard to Beaver Creek and from Stewart Crossing northward, there was 130 to 150 percent of normal precipitation. Elsewhere precipitation amounts were well below normal with many stations reporting half or less of normal amounts.

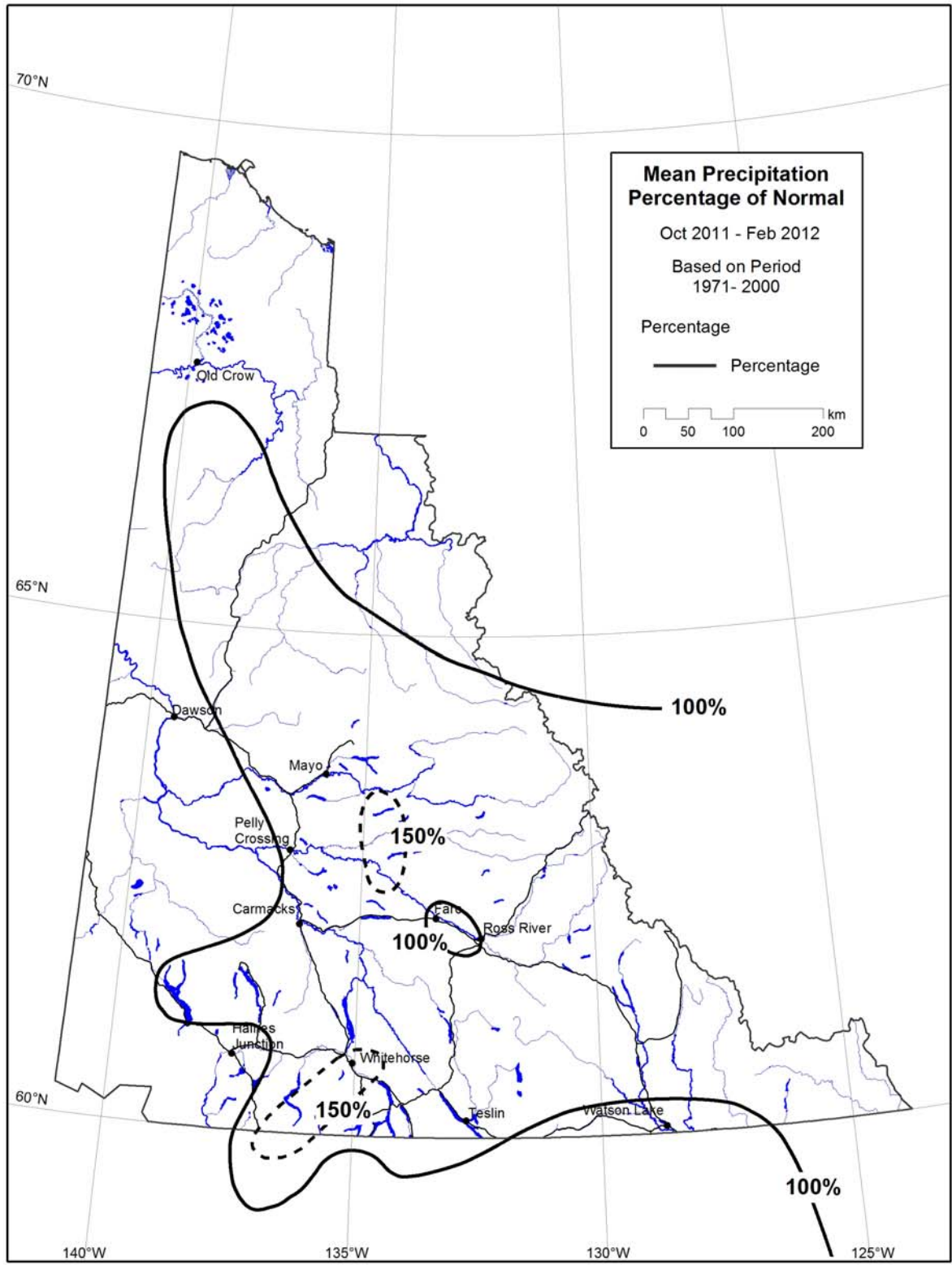
## SNOWPACK

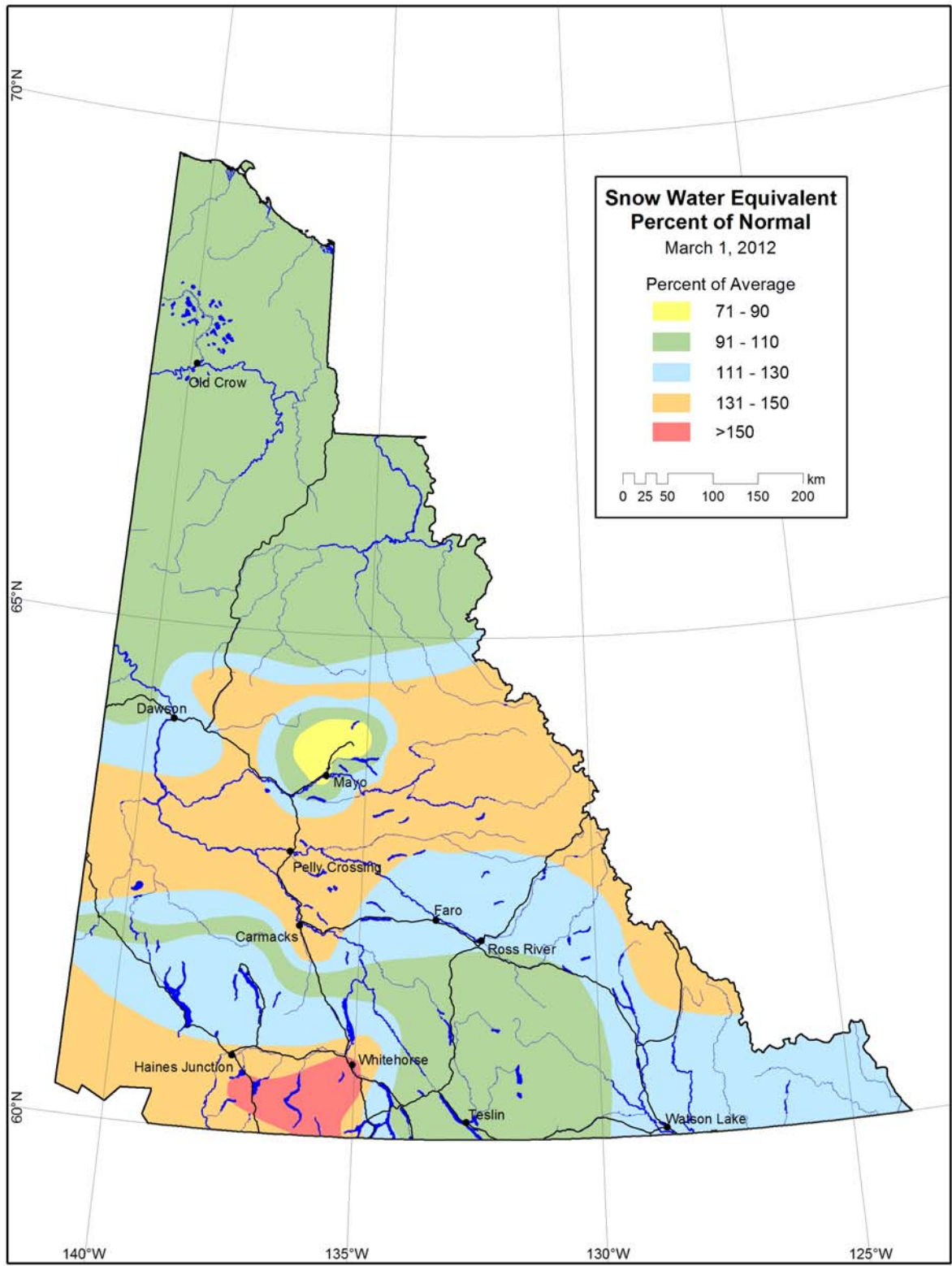
The March 1 Yukon snowpack is quite variable, though much of the Territory is above normal. Exceptions include a pocket of below normal snowpack in the Mayo area. Another exception is a pocket of significantly above normal snowpack in southwest Yukon extending from the Whitehorse region westward to Haines Junction.

## STREAMFLOW

Streamflow conditions throughout Yukon are generally near normal. Streamflow is variable in southern Yukon with the Stewart and Alsek Rivers above normal, the Pelly River near normal and the upper Yukon and Liard Rivers below normal. Streamflow conditions in northern Yukon are above normal for March 1st. Streamflow during this period represents winter baseflow, which provides an indication of winter groundwater contributions.





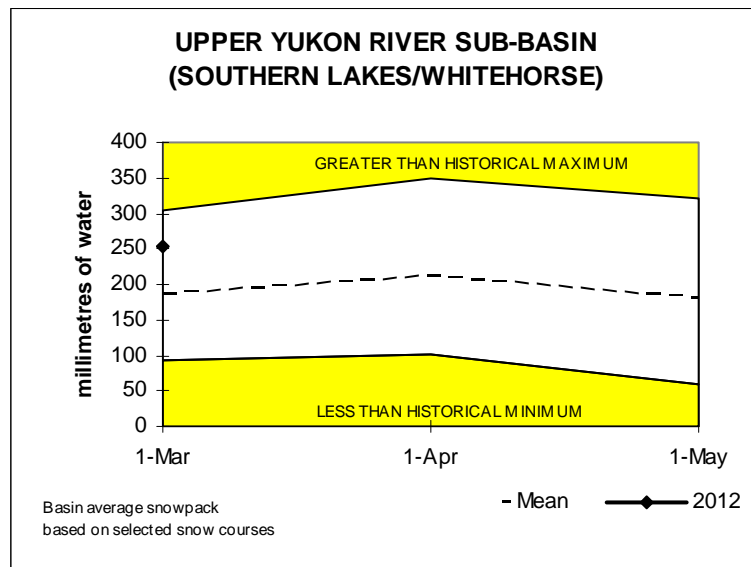


# YUKON RIVER BASIN

Snowpack conditions in the Yukon River Basin range from well above normal in much of the southwestern and northern portion of the basin to normal in south central regions. There are small pockets of high snowpack in the Whitehorse area and low snowpack in the Mayo area. Overall conditions for the Yukon River Basin are above normal.

# UPPER YUKON RIVER SUB-BASIN (SOUTHERN LAKES)

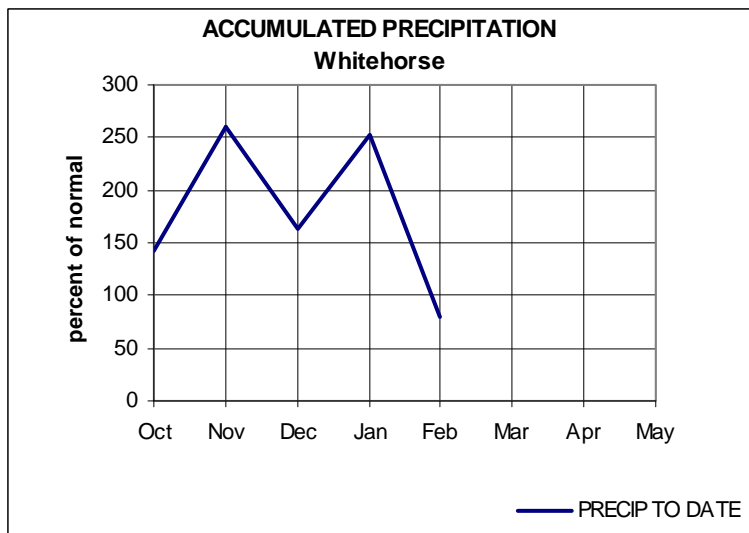
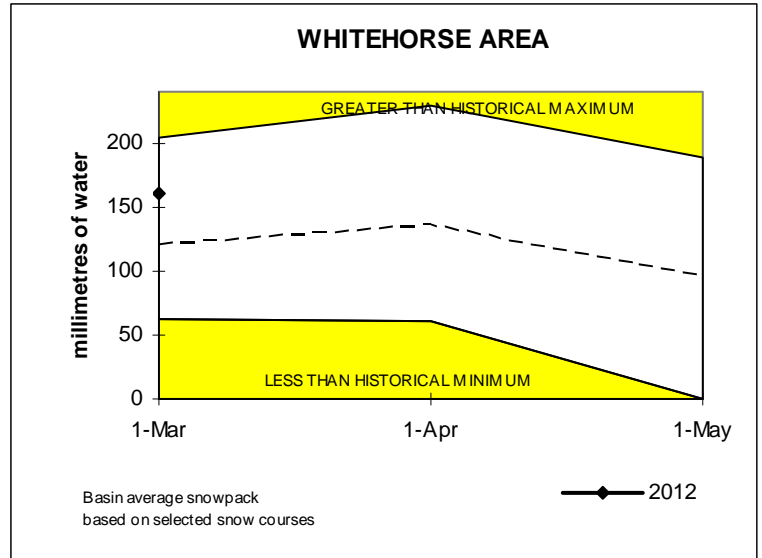
Snowpack conditions in the Upper Yukon River watershed are above normal. Values range from 81 percent of normal at Atlin to 163 percent of normal at Log Cabin which is a 54 year record. A basin wide average has been estimated to be 135 percent of normal.



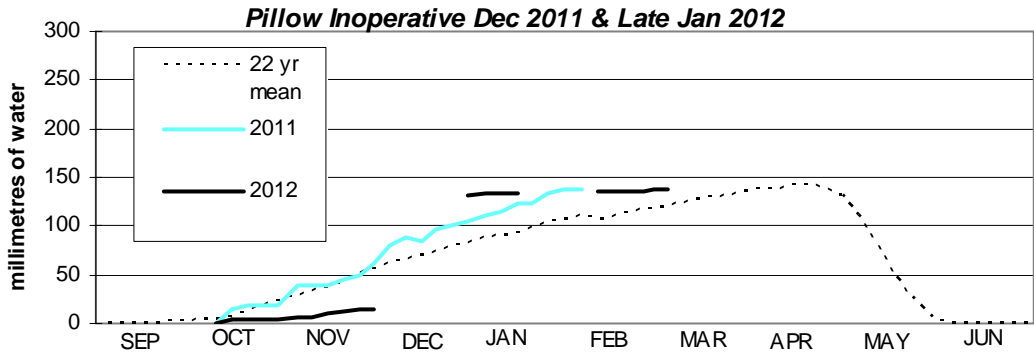


## WHITEHORSE AREA

Snowpack conditions in the Whitehorse area are well above normal for March 1<sup>st</sup>. Values range from 102 percent of normal at the Tagish to 162 percent of normal at Mt McIntyre. An area wide average is estimated to be 134 percent of normal.

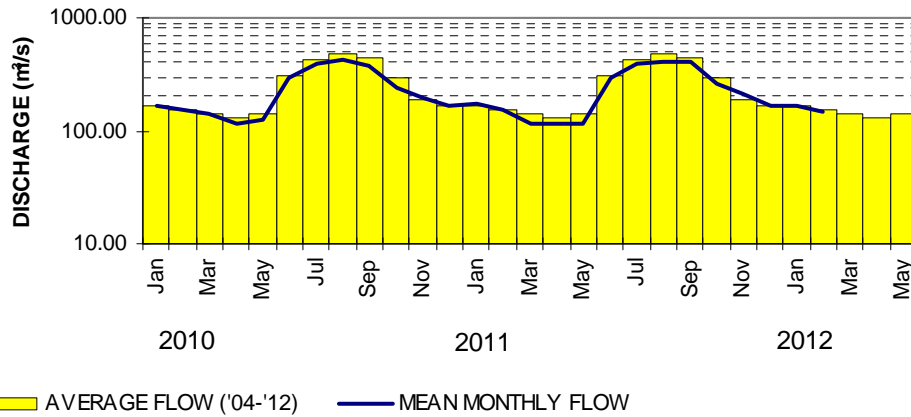


**SNOW PILLOW STATION DATA  
TAGISH, No: 09AA-SC1**



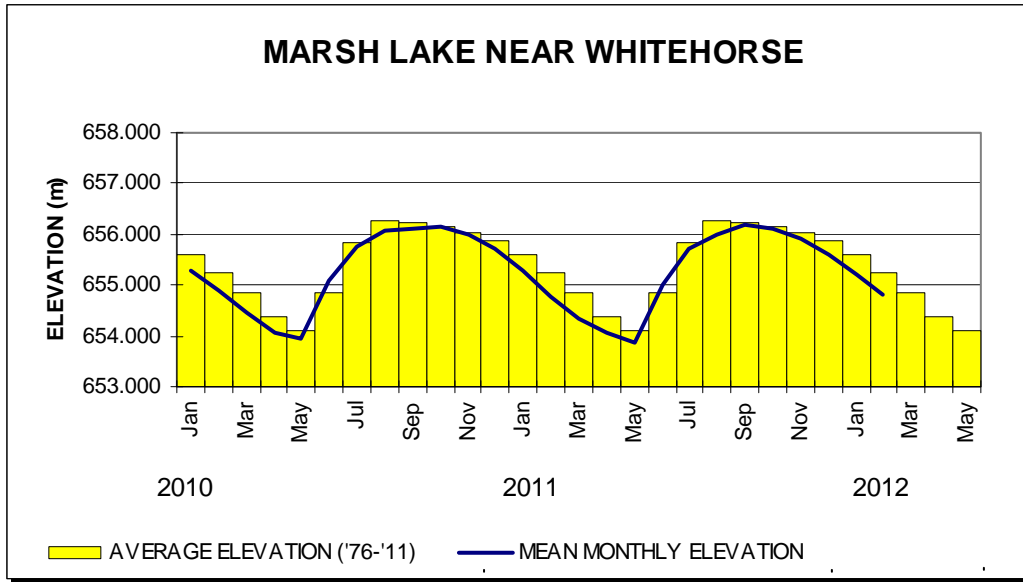
LAT 60° 17' LONG 134° 11'  
ELEVATION 1080 metres  
DRAINAGE YUKON BASIN

**YUKON RIVER AT WHITEHORSE**



## YUKON RIVER and MARSH LAKE

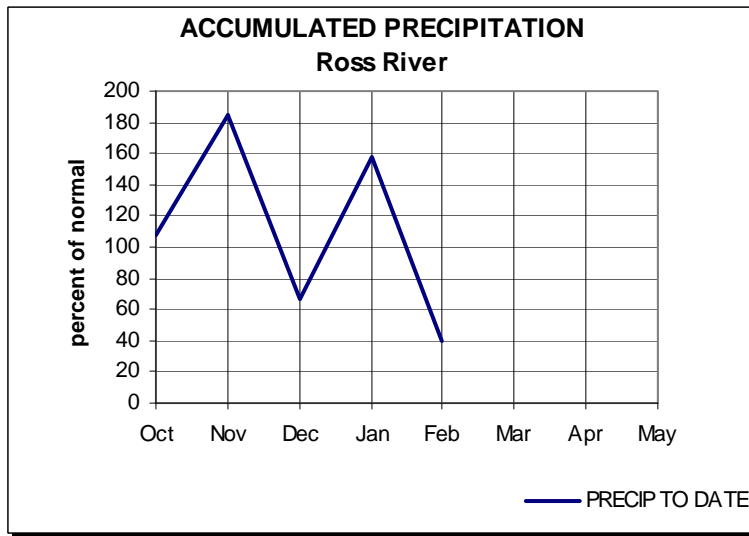
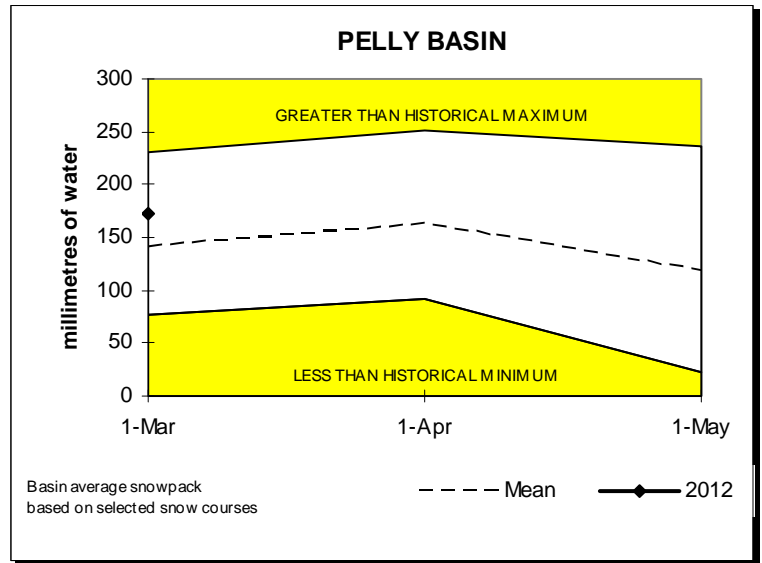
The elevation of Marsh Lake during February was 654.375 m or 0.415 m below normal. Yukon River at Whitehorse mean discharge during February was 82 percent of normal. Given normal summer meteorological conditions, volume runoff and peak flows for the season are each expected to be 125 percent of normal.

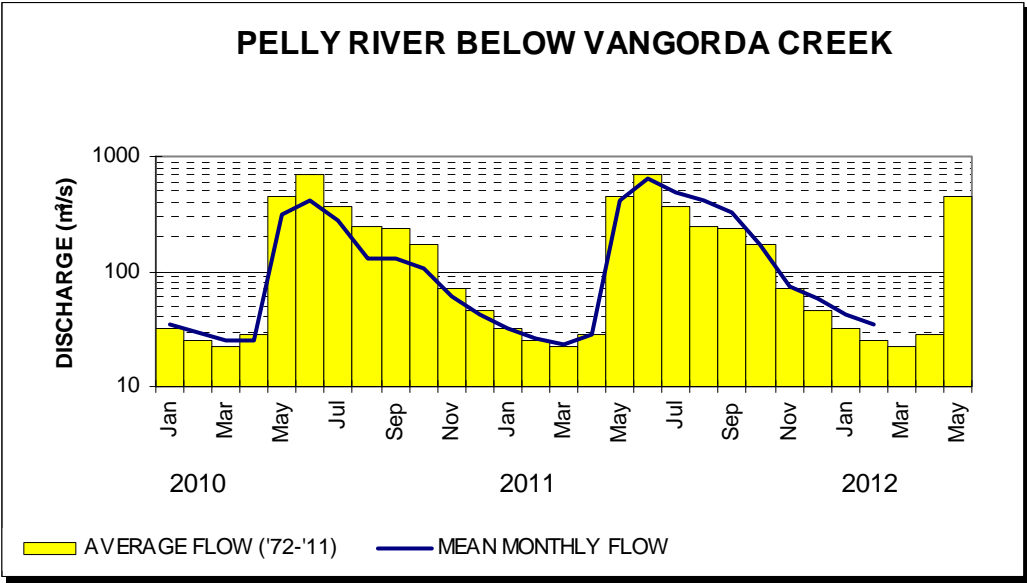
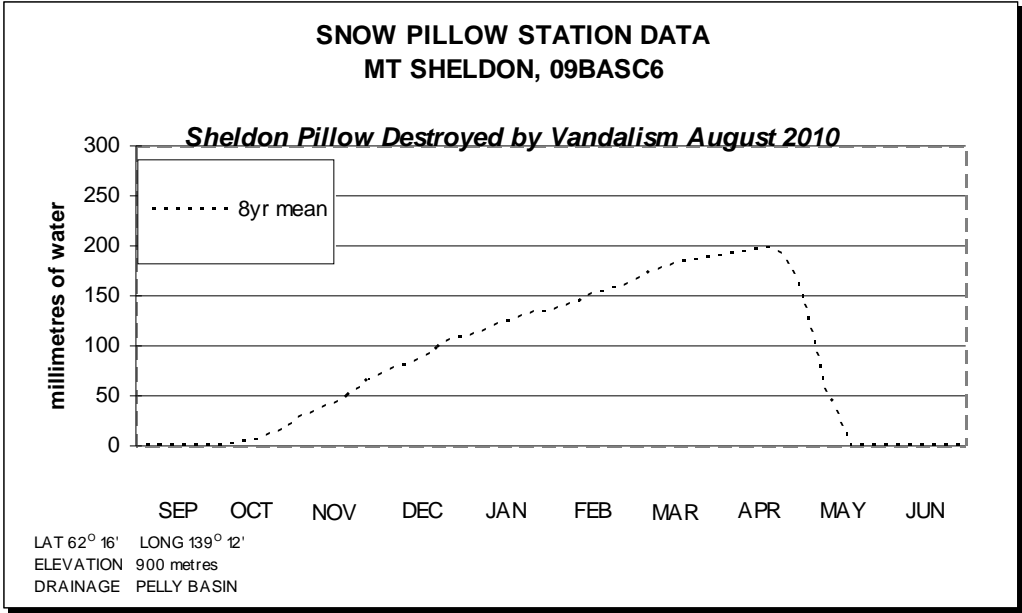


# PELLY RIVER SUB-BASIN

Snowpack conditions in the Pelly River watershed are above normal. Values of snow water equivalent range from 117 percent of normal at Twin Creeks to 131 percent of normal at Hoole River. A basin-wide average has been estimated to be 123 percent of normal.

Mean February streamflow for the watershed was 100 percent of normal as indicated by the Pelly River below Vangorda Creek. Given normal summer meteorological conditions, volume runoff and peak flows are expected to be 115 percent and 120 percent of normal respectively.

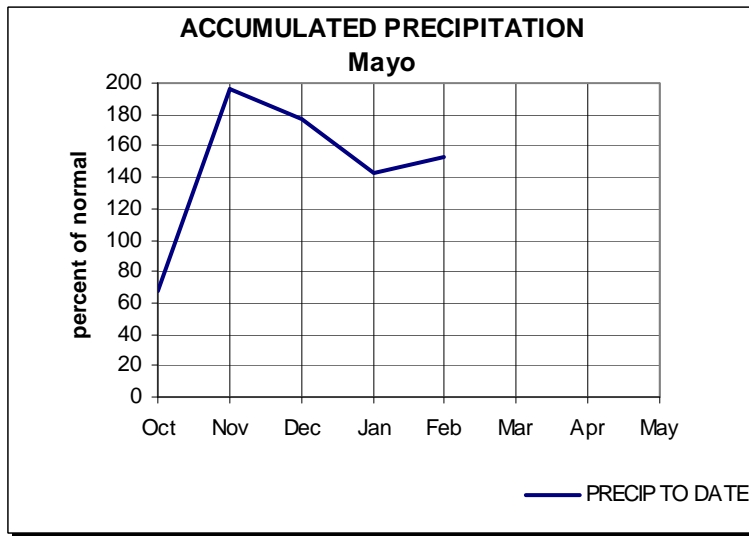
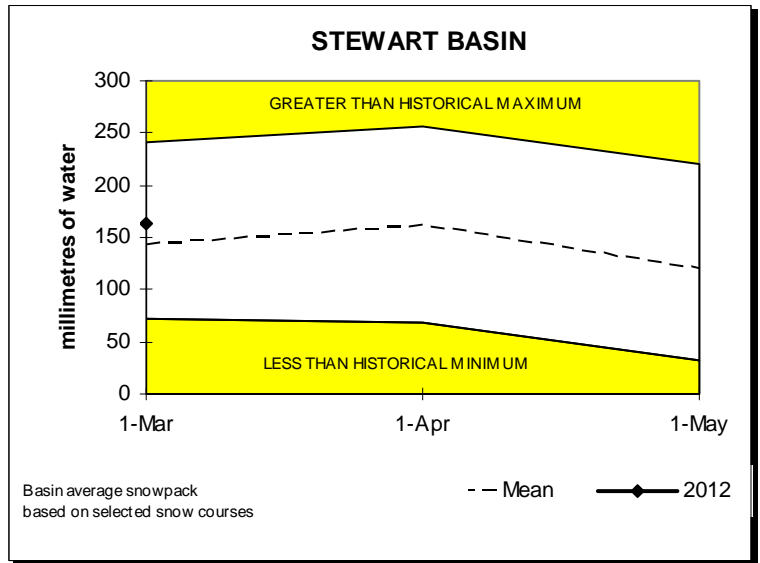


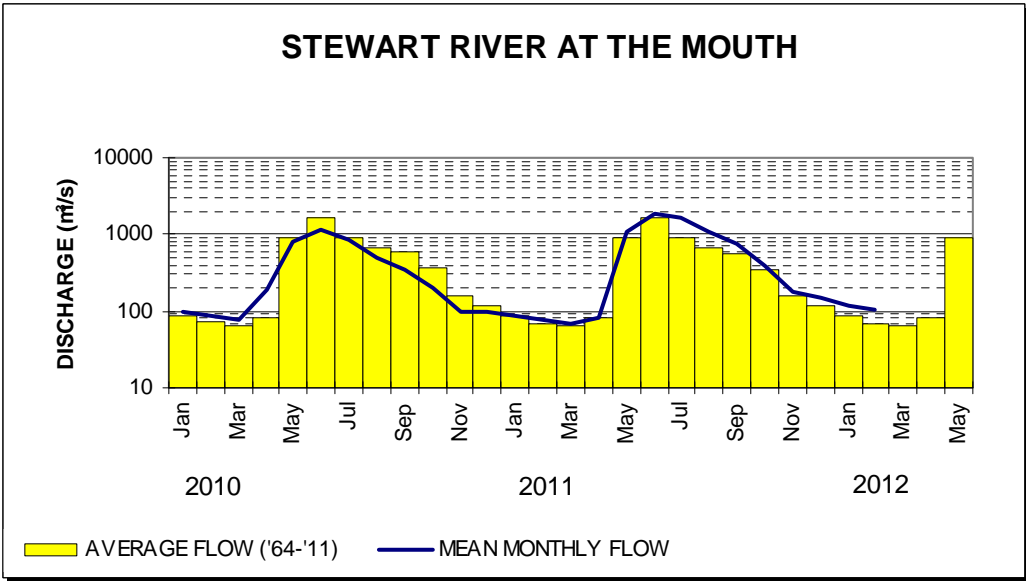
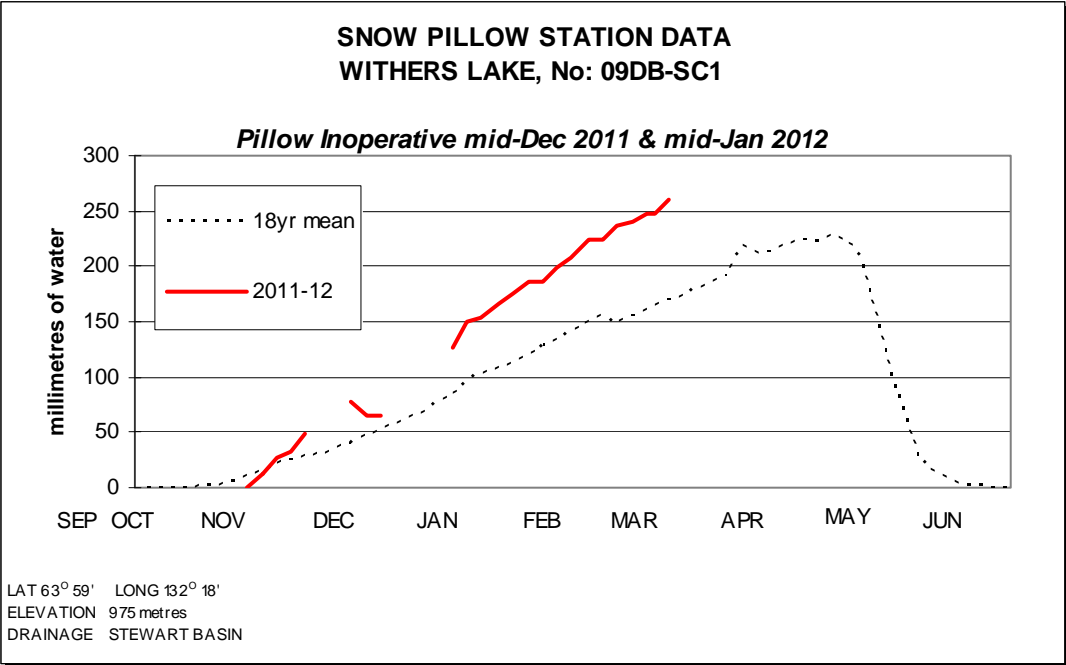


# STEWART RIVER SUB-BASIN

Snowpack conditions in the Stewart River watershed are above normal for March 1<sup>st</sup>. Values of snow water equivalent range from 86 percent of normal at Calumet to 146 percent of normal at Plata Airstrip. A basin wide average has been estimated to be 115 percent of normal.

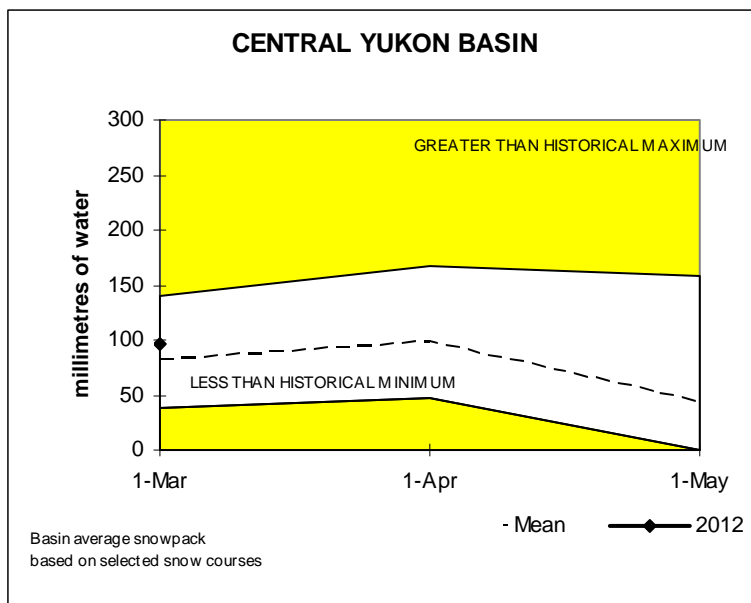
Mean February streamflow for the watershed was 119 percent of normal as indicated by the Stewart River at the Mouth. Given normal summer meteorological conditions, volume runoff and peak flows for the season are each expected to be 115 percent of normal.





# CENTRAL YUKON RIVER BASIN (CARMACKS AREA)

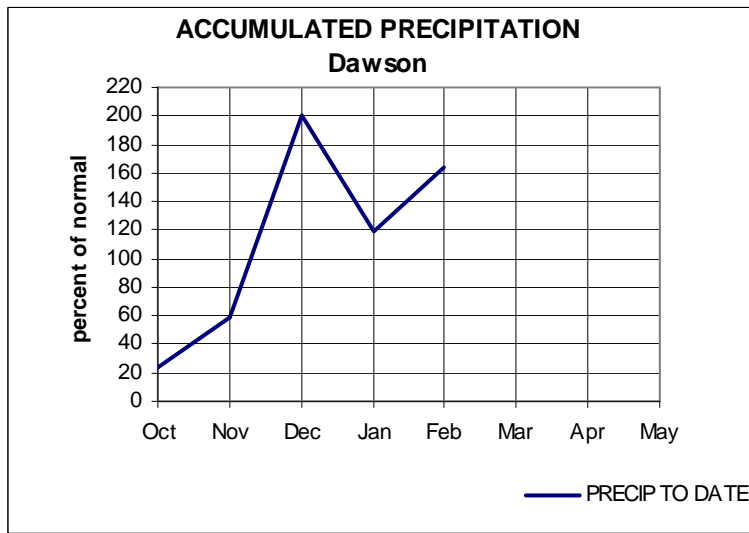
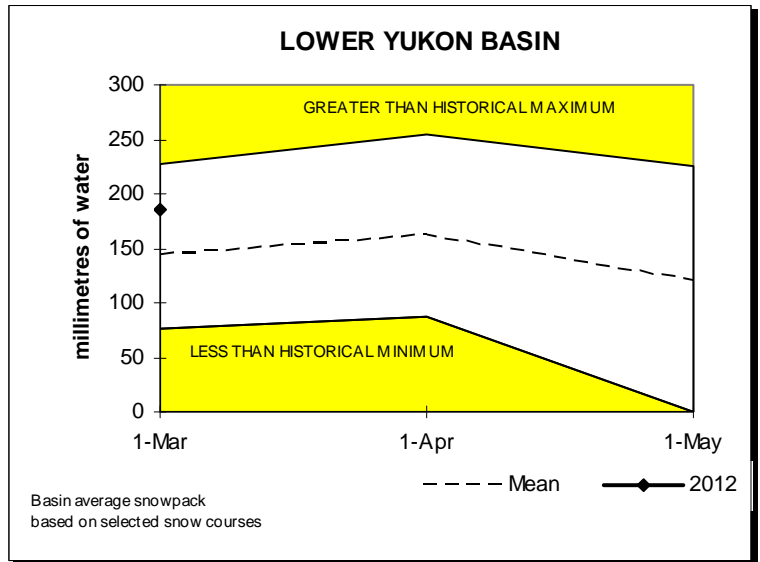
Snowpack conditions in the Carmacks area are well normal for March 1<sup>st</sup>. Values of snow water equivalent range from 100 percent of normal at Mt. Nansen to 131 percent of normal at Mt. Berdoe. An area wide average has been estimated to be 118 percent of normal.





# LOWER YUKON RIVER BASIN (DAWSON AREA)

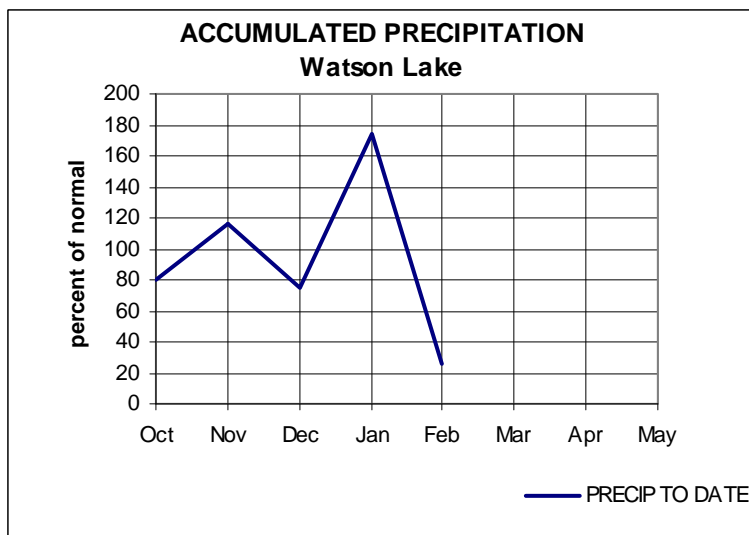
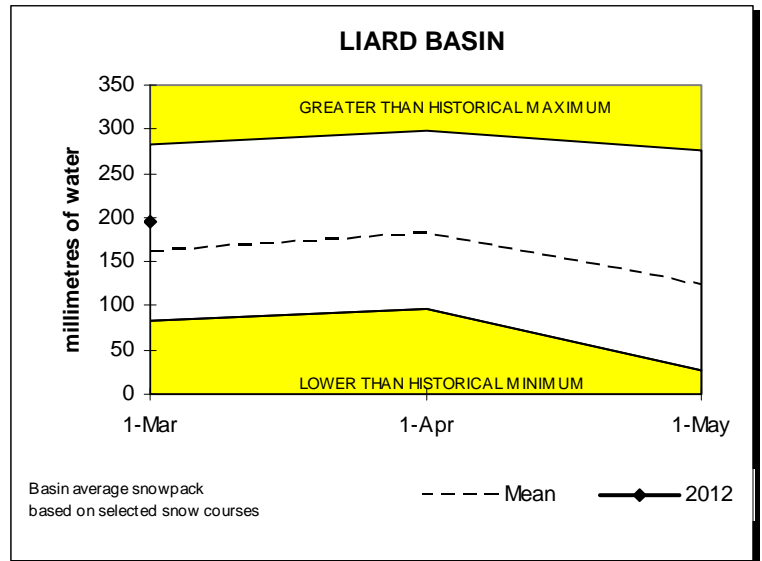
Snowpack conditions in the Dawson area are above normal for March 1<sup>st</sup>. Values of snow water equivalent range from 117 percent of normal at Midnight Dome to 147 percent of normal at Grizzly Creek. An area wide average has been estimated to be 129 percent of normal.



# LIARD RIVER BASIN

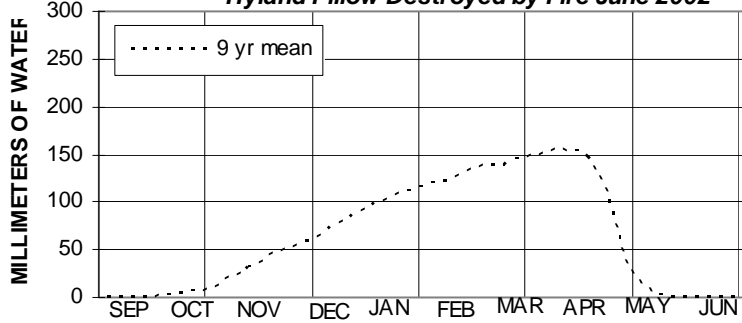
Snowpack conditions within the Liard River watershed are above normal. Values of snow water equivalent range from 97 percent of normal at Tintina Airstrip to 181 percent of normal at Hyland River. A basin wide average has been estimated to be 122 percent of normal.

Mean February streamflow for the Liard River upstream of Upper Liard was 91 percent of normal. Given normal summer meteorological conditions, volume runoff and peak flows for the season are expected to be 115 percent and 120 percent of normal respectively.



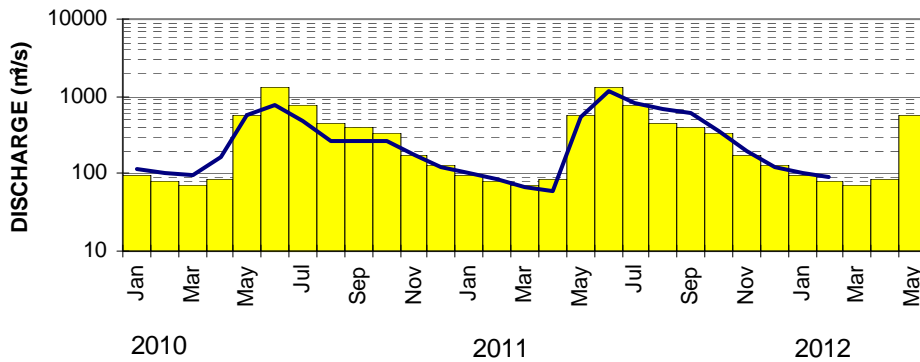
**SNOW PILLOW STATION DATA  
HYLAND RIVER, No: 10AD-SC1**

*Hyland Pillow Destroyed by Fire June 2002*



LAT 61° 31' LONG 128° 16'  
ELEVATION 855 metres  
DRAINAGE LIARD BASIN

**LIARD RIVER AT UPPER CROSSING**

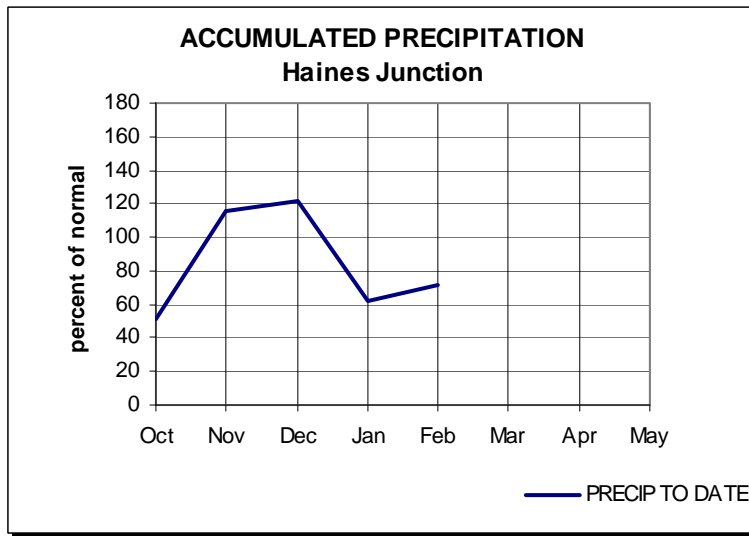
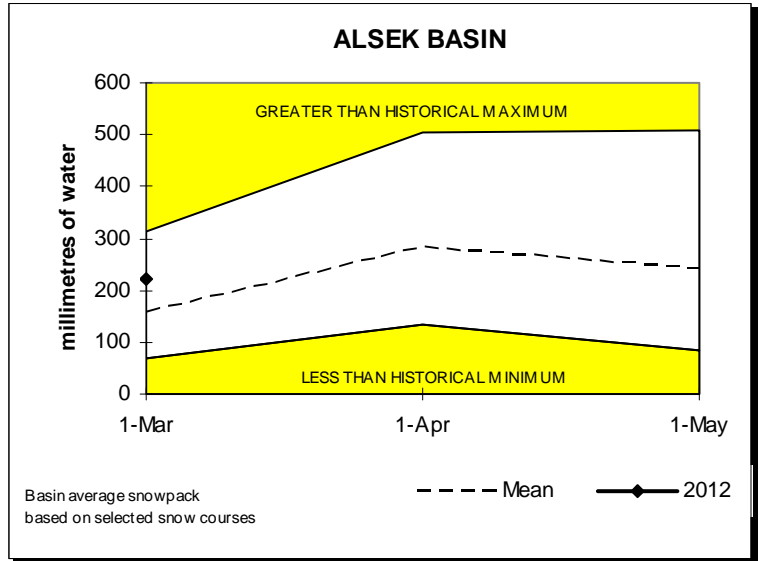


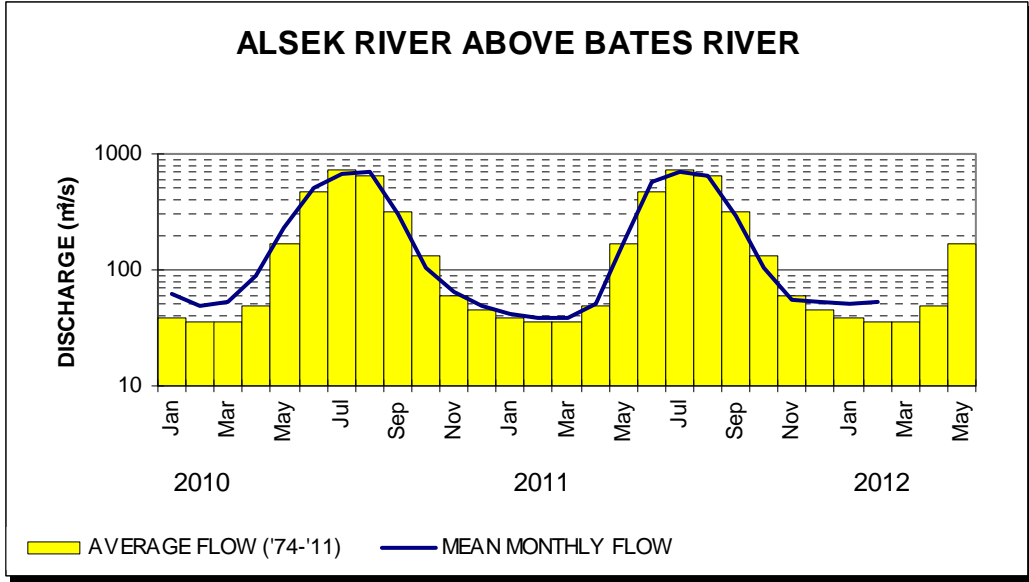
■ AVERAGE FLOW ('60-'11)    — MEAN MONTHLY FLOW

# ALSEK RIVER BASIN

Snowpack conditions within the Alsek River watershed are well above normal for March 1<sup>st</sup>. Values of snow water equivalent range from 124 percent of normal at Canyon Lake to 171 percent of normal at Alder Creek. A basin wide average has been estimated to be 141 percent of normal.

Mean monthly streamflow for February as indicated by the Alsek River above Bates River was 108 percent of normal. The Alsek River is primarily a glacial regime type, which is largely dependent on summer temperatures. Given normal summer meteorological conditions however, volume runoff and peak flows for the season are expected to be 127 and 125 percent of normal respectively.



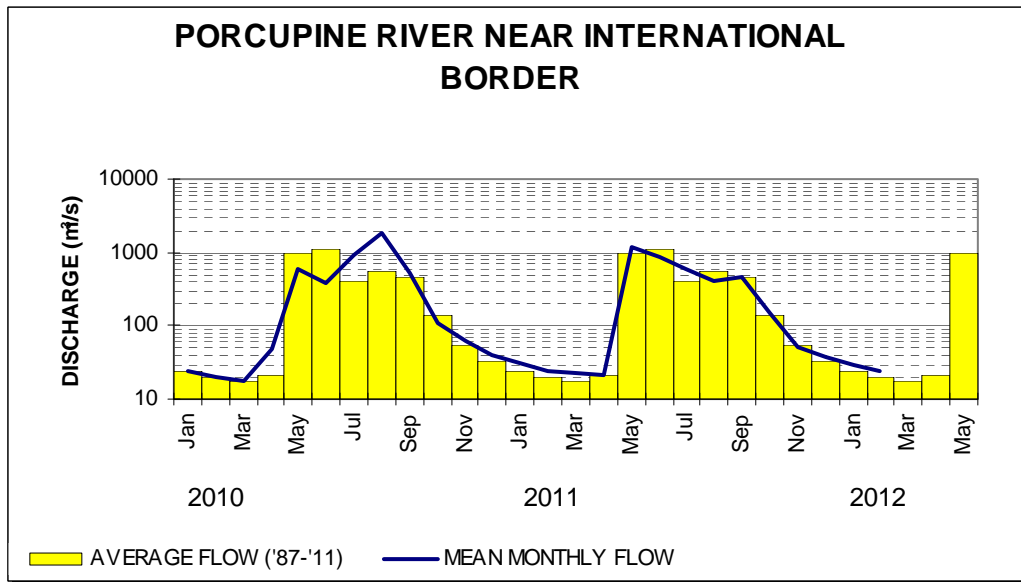
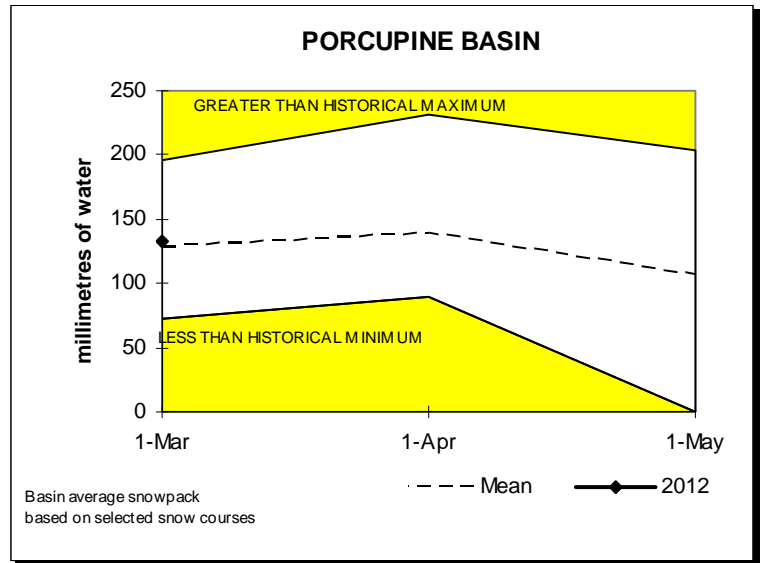




# PORCUPINE RIVER BASIN

Snowpack conditions in the Porcupine River watershed are near normal with values of snow water equivalent ranging from 96 percent of normal at Eagle Plains to 112 percent of normal at Eagle River. A basin wide average has been estimated to be 103 percent of normal.

Mean February streamflow for the basin as indicated by the Porcupine River near the International Boundary is 116 percent of normal. Porcupine River volume and peak flow forecasts are not available at this time.



# Drainage Basin and Snow Course

For Sample Date: 2012-03-01

Name	Number	Elev (m)	Date of Survey	This Year		Water Content		
				Snow Depth (cm)	Water Content (mm)	Last Year (mm)	Average (mm)	Yrs of Rec
<b>Alsek River Basin</b>								
Canyon Lake	08AA-SC01	1160	3/1/2012	51	99	145	81	34
Alder Creek	08AA-SC02	768	2/28/2012	96	248	147	145	31
Aishihik Lake	08AA-SC03	945	2/27/2012	48	87	136	75	18
Haines Junction Farm	08AA-SC04	610	2/28/2012	55	129	123	95	12
Clay Creek	08AB-SC02	670	No Surv			N.S.	567	29
Summit	08AB-SC03	1000	2/28/2012	110	320	321	249	32
Profile Mountain	08AB-SC04	900	No Surv			N.S.	285	24
<b>Yukon River Basin</b>								
Tagish	09AA-SC01	1080	2/29/2012	64	130	202	129	37
Montana Mountain	09AA-SC02	1020	2/29/2012	73	164	184	130	36
Log Cabin (B.C.)	09AA-SC03	884	2/28/2012	154	529	364	326	51
Atlin (B.C.)	09AA-SC04	730	2/29/2012	33	91	83	112	47
Mt McIntyre B	09AB-SC01B	1097	2/27/2012	82	212	219	134	36
Whitehorse Airport	09AB-SC02	700	2/27/2012	59	134	111	92	47
Meadow Creek	09AD-SC01	1235	2/27/2012	124	351	276	243	35
Jordan Lake	09AD-SC02	930	2/28/2012	63	116	89	126	24
Morley Lake	09AE-SC01	824	2/28/2012	65	152	116	143	23
Mount Berdoe	09AH-SC01	1035	2/27/2012	70	126	N.S.	95	36
Satasha Lake	09AH-SC03	1106	2/27/2012	64	104	149	85	25
Williams Creek	09AH-SC04	914	No Surv			153	87	17
Twin Creeks	09BA-SC02	900	2/27/2012	93	191	180	164	34
Hoole River	09BA-SC03	1036	2/28/2012	79	153	110	117	35
Burns Lake	09BA-SC04	1112	2/28/2012	103	239	183	192	25
Finlayson Airstrip	09BA-SC05	988	2/27/2012	42	100	92	92	25
Fuller Lake	09BB-SC03	1126	2/27/2012	100	230	198	169	25
Russell Lake	09BB-SC04	1060	2/28/2012	120	283	295	200	25
Rose Creek	09BC-SC01	1080	2/28/2012	65	107	80	95	17
Mount Nansen	09CA-SC01	1021	2/27/2012	57	68	112	68	36
Macintosh	09CA-SC02	1160	2/27/2012	63	98	143	82	36
Burwash Airstrip	09CA-SC03	810	2/28/2012	29	53	73	41	35
Duke River	09CA-SC05	1310	No Surv			N.S.	91	24
Burwash Uplands	09CA-SC06	1080	No Surv			N.S.	70	4
Beaver Creek	09CB-SC01	655	2/28/2012	55	103	117	73	37
Chair Mountain	09CB-SC02	1067	2/28/2012	49	76	N.S.	83	18
White River	09CB-SC03	823	No Surv			N.S.	61	5
Casino Creek	09CD-SC01	1065	2/27/2012	71	154	151	106	34

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Code "E" - Estimate, Code "B" - Survey date is outside of valid sampling range



# Drainage Basin and Snow Course

For Sample Date: 2012-03-01

Name	Number	Elev (m)	Date of Survey	This Year		Water Content		
				Snow Depth (cm)	Water Content (mm)	Last Year (mm)	Average (mm)	Yrs of Rec
<b>Yukon River Basin</b>								
Pelly Farm	09CD-SC03	472	2/25/2012	55	98	90	74	25
Plata Airstrip	09DA-SC01	830	2/27/2012	107	240	N.S.	164	32
Arrowhead Lake	09DA-SC02	1120	No Surv			N.S.	159	15
Withers Lake	09DB-SC01	975	2/27/2012	119	281	N.S.	199	25
Rackla Lake	09DB-SC02	1040	2/27/2012	100	232	N.S.	166	22
Mayo Airport A	09DC-SC01A	540	2/27/2012	64	100	90	89	42
Mayo Airport B	09DC-SC01B	540	2/27/2012	51	78	84	93	24
Edwards Lake	09DC-SC02	830	2/27/2012	95	197	N.S.	146	24
Calumet	09DD-SC01	1310	2/27/2012	94	151	139	174	34
King Solomon Dome	09EA-SC01	1080	3/1/2012	88	177	166	147	37
Grizzly Creek	09EA-SC02	975	2/28/2012	94	225	103	152	36
Midnight Dome	09EB-SC01	855	2/28/2012	79	153	152	131	36
Boundary (Alaska)	09EC-SC02	1005	2/28/2012	51	86	119	115	37
<b>Porcupine River Basin</b>								
Riff's Ridge	09FA-SC01	650	2/29/2012	82	134	152	124	25
Eagle Plains	09FB-SC01	710	2/28/2012	79	140	161	147	29
Eagle River	09FB-SC02	340	2/29/2012	75	123	98	110	29
Old Crow	09FD-SC01	299	No Surv			N.S.	103	25
<b>Liard River Basin</b>								
Watson Lake Airport	10AA-SC01	685	2/27/2012	65	157	165	131	47
Tintina Airstrip	10AA-SC02	1067	2/28/2012	89	177	142	182	33
Pine Lake Airstrip	10AA-SC03	995	2/28/2012	86	207	174	201	35
Ford Lake	10AA-SC04	1110	2/28/2012	78	149	120	168	24
Frances River	10AB-SC01	730	2/27/2012	72	172	148	142	36
Hyland River	10AD-SC01	855	2/28/2012	97	269	181	150	36
<b>Peel River Basin</b>								
Blackstone River	10MA-SC01	920	3/1/2012	57	80	84	86	36
Ogilvie River	10MA-SC02	595	2/29/2012	59	79	94	90	36
Bonnet Plume Lake	10MB-SC01	1120	No Surv			N.S.	151	23
<b>Alaska Snow Courses</b>								
Eaglecrest	08AK-SC01	305	2/27/2012	290	874	450	442	30
Moore Creek Bridge	08AK-SC02	700	3/1/2012	170	528	N.S.	472	19

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Code "E" - Estimate, Code "B" - Survey date is outside of valid sampling range

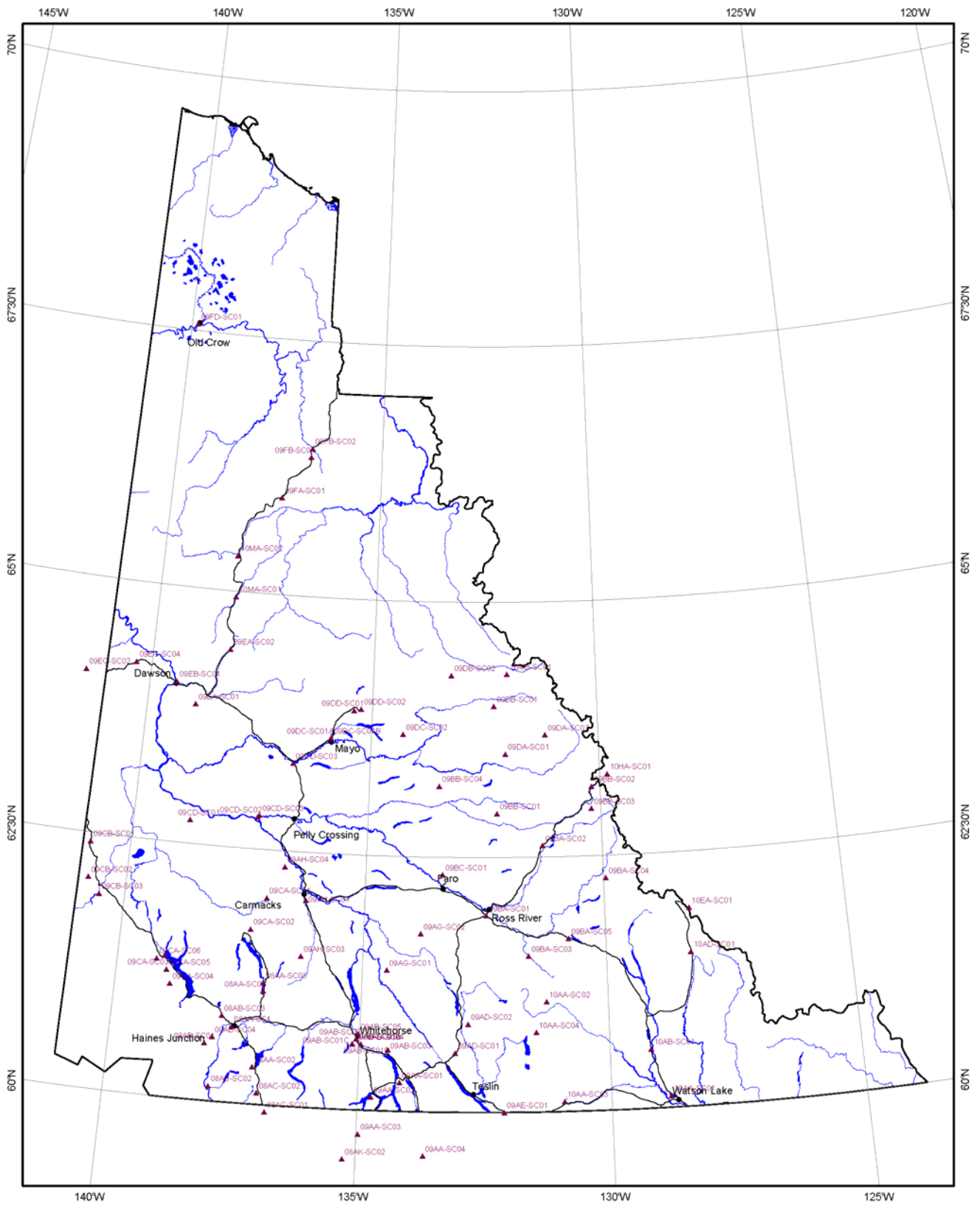
## INDEX OF YUKON SNOW COURSES

NAME	NUMBER	ELEVATION (m)	LATITUDE	LONGITUDE	AGENCY
<b>YUKON RIVER BASIN</b>					
Tagish	09AA-SC1	1080	60°17'	134°11'	2
Montana Mountain	09AA-SC2	1020	60°08'	134°44'	2
Log Cabin (B.C.)	09AA-SC3	884	59°46'	134°58'	2
Atlin (B.C.)	09AA-SC4	730	59°34'	133°42'	3
Mt. McIntyre (B)	09AB-SC1B	1097	60°39'	135°08'	1
Whitehorse Airport	09AB-SC2	700	60°42'	135°04'	1
Meadow Creek	09AD-SC1	1235	60°35'	133°05'	2
Jordan Lake	09AD-SC2	930	60°52'	132°50'	1
Morley Lake	09AE-SC1	824	60°00'	132°07'	2
Mount Berdoe	09AH-SC1	1035	62°02'	136°14'	2
Satasha Lake	09AH-SC3	1106	61°29'	136°16'	2
Williams Creek	09AH-SC4	914	60°21'	136°43'	2
Twin Creeks	09BA-SC2	900	62°37'	131°16'	1
Hoole River	09BA-SC3	1036	61°32'	131°36'	1
Burns Lake	09BA-SC4	1112	62°17'	129°57'	1
Finlayson Airstrip	09BA-SC5	988	61°42'	130°46'	1
Fuller Lake	09BB-SC3	1126	62°58'	130°46'	1
Rose Creek	09BC-SC01	1080	62°20'	133°23'	1
Russell Lake	09BB-SC4	1060	63°12'	133°29'	1
Mount Nansen	09CA-SC1	1021	62°02'	137°03'	2
Macintosh	09CA-SC2	1160	61°43'	137°20'	2
Burwash Airstrip	09CA-SC3	810	61°23'	139°03'	2
Duke River	09CA-SC5	1310	61°15'	138°59'	6
Beaver Creek	09CB-SC1	655	62°25'	140°51'	2
Chair Mountain	09CB-SC2	1067	62°04'	140°48'	2
White River	09CB-SC3	823	61°55'	140°32'	2
Casino Creek	09CD-SC1	1065	62°44'	138°48'	2
Pelly Farm	09CD-SC3	472	62°50'	137°20'	8
Plata Airstrip	09DA-SC1	830	63°31'	132°03'	1
Arrowhead Lake	09DA-SC2	1120	63°42'	131°10'	1
Withers Lake	09DB-SC1	975	63°59'	132°18'	1
Rackla Lake	09DB-SC2	1040	64°17'	133°15'	1
Mayo Airport (A)	09DC-SC1A	540	63°38'	135°53'	2
Mayo Airport (B)	09DC-SC1B	540	63°38'	135°53'	2
Edwards Lake	09DC-SC2	830	63°42'	134°18'	1
Calumet	09DD-SC1	1310	63°55'	135°24'	2
King Solomon Dome	09EA-SC1	1080	63°52'	138°56'	2
Grizzly Creek	09EA-SC2	975	64°26'	138°16'	2
Boundary (Alaska)	09EC-SC2	1005	64°05'	141°27'	4
Midnight Dome	09EB-SC1	855	64°04'	139°24'	2

NAME	NUMBER	ELEVATION (m)	LATITUDE	LONGITUDE	AGENCY
<b>LIARD RIVER BASIN</b>					
Watson Lake Airport	10AA-SC1	685	60°07'	128°50'	2
Tintina Airstrip	10AA-SC2	1067	61°05'	131°15'	1
Pine Lake Airstrip	10AA-SC3	995	60°06'	130°56'	2
Ford Lake	10AA-SC4	1110	60°47'	131°28'	1
Frances River	10AB-SC1	730	60°35'	129°11'	2
Hyland River	10AD-SC1	855	61°31'	128°16'	2
<b>ALSEK RIVER BASIN</b>					
Canyon Lake	08AA-SC1	1160	61°07'	136°59'	7
Alder Creek	08AA-SC2	768	60°22'	137°06'	6
Aishihik Lake	08AA-SC3	945	61°12'	137°00'	7
Haines Junction Farm	08AA-SC4	610	60°45'	137°34'	2
Clay Creek	08AB-SC2	670	60°09'	137°56'	6
Summit	08AB-SC3	1000	60°51'	137°47'	2
Profile Mountain	08AB-SC4	900	60°38'	137°56'	6
<b>PEEL RIVER BASIN</b>					
Blackstone River	10MA-SC1	920	64°57'	138°15'	2
Ogilvie River	10MA-SC2	595	65°21'	138°18'	2
Bonnet Plume Lake	10MB-SC1	1120	64°18'	132°00'	1
<b>PORCUPINE RIVER BASIN</b>					
Riff's Ridge	09FA-SC1	650	65°57'	137°22'	2
Eagle Plains	09FB-SC1	710	66°22'	136°44'	2
Eagle River	09FB-SC2	340	66°27'	136°43'	2
Old Crow	09FD-SC1	299	67°34'	139°51'	5
<b>ALASKA SNOW COURSES</b>					
Eaglecrest	34J03	305	58°17'	134°32'	4
Moore Creek Bridge	34K02	701	59°31'	135°15'	4

Numbers refer to Agencies cooperating in the Yukon Snow Surveys:

1. Department of Environment, Government of Yukon
2. Dept of Energy Mines and Resources Yukon
3. British Columbia Ministry of Environment
4. USDA Natural Resources Conservation Service
5. Yukon Transportation and Highways
6. Parks Canada
7. Yukon Energy Corp.
8. Private Contract



**Location of Water Resource Snow Courses**