

## A SCIENTIFIC AND HISTORICAL BACKGROUND REGARDING THE TIME SYSTEM IN SASKATCHEWAN

### The Theory

In 1878, Sir Sanford Fleming proposed a plan to standardize time that would divide the earth into 24 standard time zones. Each of the time zones was to be one hour different from the neighbouring zones. Each zone was defined equally on either side of a standard meridian. Meridians were to be placed every 15 ° of longitude around the earth's surface. If you were to measure the width of a time zone at a latitude in North America, a time zone would average about 800 miles wide. Actual time zones have irregular boundaries, so this is approximate.

A time zone is the unit representing the difference in time between a given location and Universal Time (UT) or Greenwich Mean Time (GMT), using Greenwich, England as a base at 0 °. The difference is positive if the local time is later than Universal Time and negative if it is earlier.

Today Canada has six standard time zones.

CANADIAN TIME ZONES	PACIFIC	MOUNTAIN	CENTRAL	EASTERN	ATLANTIC	NFLD
Time Meridian	120° W	105° W	90° W	75° W	60° W	52.5° W
Time difference	1:00 pm	2:00 pm	3:00 pm	4:00 pm	5:00 pm	5:30 pm
Number of hours earlier than UT (standard time zone)	- 8 H	- 7 H	- 6 H	- 5 H	- 4 H	- 3 ½ H
Number of hours earlier than UT (daylight saving time)	- 7 H	- 6 H	- 5 H	- 4 H	- 3 H	- 2 ½ H

Notes:

1. Degree longitude from Greenwich England starting at 0 ° prime meridian. The **meridian** is in the centre of the time zone. 7.5 ° on either side of the meridian comprises a time zone.

Theoretically, Saskatchewan is physically located within the Mountain Standard Time (MST) zone. The 105° standard meridian for MST runs approximately down the middle of the province. 7.5° east of the standard meridian and 7.5 ° west of the standard meridian falls within the MST zone. The eastern boundary should be at 97° 30' west longitude (a north-south line passing about 20 miles west of Winnipeg, Manitoba. A western

boundary of the time zone should be at 112° 30' west longitude (a north-south line passing about 20 miles east of Lethbridge).<sup>1</sup>

## History

Canada passed legislation in 1890 establishing time divisions to come in force after July 1, 1891, for Canada. The act indicated that “the territories of Saskatchewan and Assiniboia shall use 105<sup>th</sup> meridian time, 7 hours slower than Greenwich.” The act also authorized the provinces to alter the time as the need arose.

The province of Saskatchewan passed legislation declaring MST as the time to be used for the province, originally in 1909. The act was reinterpreted in 1920, 1930 and 1940 and was repealed in 1959, but “stated that any official reference to time shall be deemed to be Mountain Standard Time”.

Before the implementation of *The Time Act* in 1966, the question of time was the responsibility of municipalities. Under *The Cities Act* and *The Towns Act*, bylaws could be passed at any time through the conduct of a plebiscite on the question of observed time. This resulted in a patchwork of time zones in Saskatchewan with communities using Central Standard Time (CST), MST or Daylight Saving Time (DST) as their local time.

On October 31, 1956, under Municipal Elections –*The Time Plebiscite Act*, Saskatchewan held a province-wide plebiscite on the choice of local time zones. The majority of the urban voters favoured CST, while the rural areas favoured MST. The voters were equally split on DST.

In what government considered a compromise solution to establishing uniform time, effective April 27, 1958, legislation was passed switching the entire province to CST until October, when it would change to MST for the winter months. The government chose not to enforce this legislation and the result was chaos as dozens of communities in the southeast refused to change to MST in the fall of 1958.

A Time Committee consisting of representatives of Saskatchewan School Trustees Association (SSTA), the Saskatchewan Association of Rural Municipalities (SARM) and the Saskatchewan Urban Municipalities Association (SUMA) was set up in the summer of 1962.

One of the conclusions of the Time Committee was that “the observance of one uniform time throughout the province all year for instance, would work except that the people of the province will never agree on whether it should be Mountain or Central Time.”<sup>2</sup>

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<sup>1</sup> Earl R. V. Milton, A Submission to the Government of Saskatchewan Regarding Time Zoning in Saskatchewan. 1966

<sup>2</sup> Ibid. no page

After much research, consultation and deliberation, the Time Committee's recommendations were submitted to Cabinet in May 1965 and formed the basis of the legislation to be implemented.

It was not until 1966 that *The Time Act* was passed in the Saskatchewan legislature. The "solution" was a refinement of the 1958 compromise, made to satisfy all interests and resulted in the rather unique situation that exists in Saskatchewan with respect to MST and CST.

The 1966 Act established that:

- Central Standard Time be used and observed throughout the year in eastern and northeastern Saskatchewan.
- Central Standard Time be used and observed throughout the year in northwestern Saskatchewan except in those areas of northwestern Saskatchewan where a majority of the electors voting decide on another form of time.
- In western Saskatchewan, which is divided into time option areas, Central Standard Time shall be observed during the summer period from the first Sunday in April until the last Sunday in October.
- Mountain Standard Time shall be observed during the winter period from the last Sunday in October to the first Sunday in April, unless a majority of the electors in a time option area vote in favour of observing Central Standard Time in the winter period as well.

Time option areas generally correspond to school divisions within western Saskatchewan. Section 9 of *The Time Act* sets out specific requirements for establishing time option areas, and also establishes current time option areas for western Saskatchewan listed as a schedule to the Act.

In recent years, the majority of time option areas in western Saskatchewan have voted to observe CST throughout the year.

### **Daylight Saving Time**

DST was implemented during the First and Second World Wars as an emergency wartime measure to save electricity and fuel. However, its use has continued since world war one in many areas, mainly during the summer months.

With DST, on the first Sunday in April, clocks are turned forward one hour and, on the last Sunday in October, they are turned back again. DST is 1 hour later than Standard Time, i.e., 10:00 a.m. EST is 11:00 a.m. EDT. It is the adoption of the standard time of the adjacent time zone lying east of any location. The clock is advanced one hour or runs continually fast by one hour. When using DST, the sun rises one hour later, noon occurs

one hour later and the sun sets one hour later than using standard time calculated from the local time zone meridian.

Legislation regarding the use of DST is usually provincial. DST is adopted by nearly all communities in Canada and the Lloydminster area (Battle River time option area) in Saskatchewan. This area follows the same time as Alberta, (MST during the winter months and CST during the summer). Saskatchewan is on CST year round.

By remaining on CST all year, Saskatchewan is on one uniform time year round. It shares the same time observed by Alberta during the summer months (Mountain Daylight Saving Time) and observes the same time zone as Manitoba – CST for the winter months.

The National Research Council web site at <http://www.nrc.ca/inms/time/whatime.html> shows maps of legislated times that Saskatchewan and the other provinces observe during the winter and summer months.

### **Other Studies**

In February 1966, Earl R. V. Milton, Assistant Professor of Physics at the University of Saskatchewan Regina Campus, submitted a report on time to the then Premier of Saskatchewan, Ross Thatcher, for government's consideration. Dr. Milton was the only professional astronomer in Saskatchewan at that time. The report included the basic definition of time, the development of timekeeping, and the evolution of standardized system of time zoning in use in North America.

Professor Milton concluded that the entire province of Saskatchewan should be using MST based on these considerations:

- “The true time for Saskatchewan is that of the 105<sup>th</sup> meridian, which runs through the centre of the province; this time is commonly called Mountain Standard Time.
- Private interests are endeavouring to promote agreement on a continent-wide time change from standard time to daylight time during the summer months. Unless the province of Saskatchewan is using Mountain Standard Time, cooperation with the rest of the continent in this endeavour is not feasible.
- The possible establishment of a uniform prairie regional time zone might be possible using MST; no other time in use on the prairies could be adopted by all three provinces concerned.”<sup>3</sup>

Milton provided an argument for MST through the comparison of clock error for points in Saskatchewan using CST and MST. The further from a central meridian a location lies, the greater the clock error. Milton indicated “to be included in an idealized time zone, the clock error of any location must not exceed thirty minutes.”<sup>4</sup>

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<sup>3</sup> Earl R. V. Milton, A Submission to the Government of Saskatchewan Regarding Time Zoning in Saskatchewan. 1966

<sup>4</sup> Ibid. no page

For Saskatchewan, Milton showed that the most clock error for certain locations using CST ranged from +47 to +80 minutes; whereas clock error for these locations using MST ranged from -13 to + 20 minutes.

### **Current Status**

The Minister of Government Relations is responsible for *The Time Act*. The Act was introduced to allow the people of Saskatchewan to have one uniform time in the summer, but allowed areas on the western side of the province to vote on whether to observe MST or CST during the winter months.

During the summer months all of Saskatchewan observes CST. Only the Battle River (Lloydminster) Time Option area follows MST during the winter. The rest of the province is on CST year round. Theoretically, Saskatchewan is located within the MST zone so, for most of the province, clocks are one hour advanced from this.