Northern Forest Research Centre

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Recent Activities

Two ENFOR (Energy from the Forest) projects are being finalized for publication: a) Impact of climate variation on biomass accumulation in the boreal forest zone: selected references. This report includes 329 annotated references under 25 topic headings, including information on the climate of the boreal zone, climate/growth relationships, climatic change and variation, and growing season information. The report also provides a synthesis and identifies knowledge gaps. b) Impact of climatic variation on boreal forest biomass through the use of treetransects through the boreal forest in the prairie provinces and NWT. Material was analyzed for 8 sites, including one with both white and black spruce. Ring-width, ring-density, ring-volume, and ring weight parameters were statistically compared with local temperature and precipitation records. Further sampling and analysis is planned during 1983 to help establish whether apparent growth differences between the Alberta and Manitoba transects can be accounted for by different climatic regimes.

A climate study based on tree ring data was also carried out by Forintek Canada Corporation with CFS funding near the Columbia Icefields. This involved sampling several hundred Engelmann spruce, 5 of which proved to be over 600 years old. This material provided good crossdating of rings with material collected earlier at Peyto Lake and near Lake Louise. They plan to undertake climatic correlations using principal component analysis to compare with temperature and precipitation records from Jasper and Lake Louise and with river runoff data from the Sunwapta River.

A report was prepared on the history and development of the Canadian Climate Program with David Phillips of the Canadian Climate Centre, AES Downsview, and another on Richmond Longley's contributions to our knowledge of climate variability and change in Canada.

The last year of the intensive snow surveys on the Marmot Creek Basin were completed in March under contract with D.L. Golding (U. of British Columbia). A paper was published on snowpack management on the Marmot Watershed to increase late season streamflow. Studies continue on soil moisture modeling and in using climatic parameters in hydrologic vegetation manipulation models. A new study is to rank evaporation from snow in forest clearings.

A note was published on frost effect on seedling container production, while papers were presented or prepared on frost hazards in forest nurseries, plantations and natural stands, and on frost types and damage to forests. Hourly air temperatures and temperatures of various parts of the seedling during over wintering have been followed in relation to studies of cold hardening and formancy.

The chemistry of precipitation at 5 locations near sour gas plants were followed for 15 days, while the variability in volume and chemistry of precipitation in a forest stand was also monitored and analyzed over a longer period. A paper was presented on the impact of elemental sulphur dust on soils and vegetation in lodgepole pine stands in west-central Alberta.

In the area of forest fire research, papers are currently nearing completion on foliar moisture and calorific variation in jack pine, black and white spruce, and balsam fir in central Alberta. Data on the relationships between fuels, fire behaviour and weather in jack pine stands is also being analyzed. A fire history atlas for Alberta is under review. Work continues on a fire danger climatology for the new sun-exposed fine fuel moisture code (SFFMC), while fire weather data and Cladonia fire hazard index values were acquired for the Lambert Creek Lookout in NE Alberta for the period 1972-1982. Compilation and organization of forest fuels, surface fire weather observations, fire danger ratings, climatological conditions, and meteorological characteristics associated with the behaviour of 7 major wildfires was continued. A file report on a bibliography of wildfire case histories and studies was completed.

Reports and Publications

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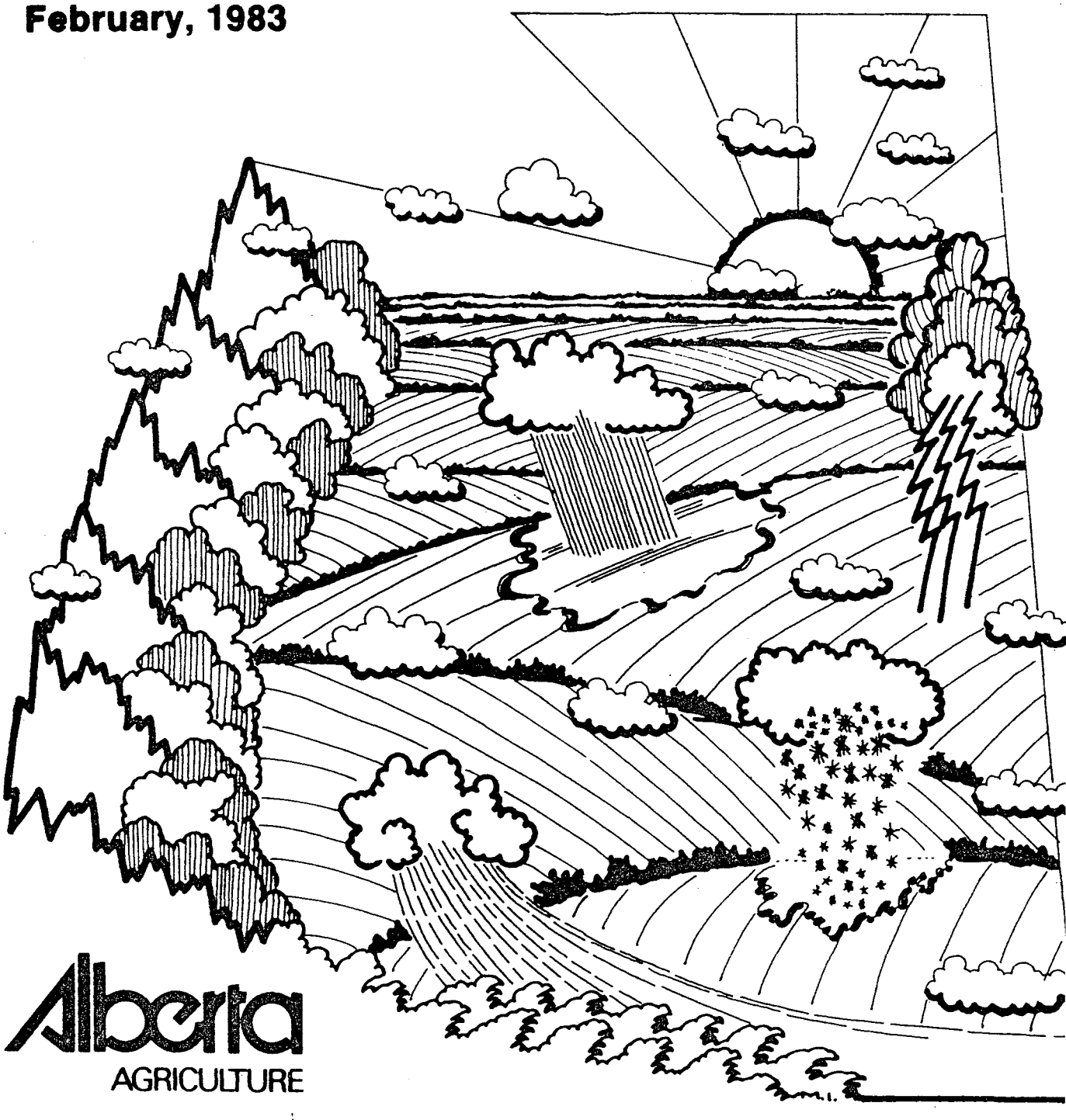
Zalasky, H. 1982. Summary of frost types and damage to forests. Environ. Can., Can. For. Serv., North. For. Res. Cent., Edmonton, Alta. File Rep.

CURRENT CLIMATOLOGICAL ACTIVITY IN ALBERTA

Proceedings of the 7th Annual Workshop
Alberta Climatological Association
February, 1983



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November 1983