



Proceedings
20th Annual Meeting
WESTERN SNOW CONFERENCE

Sacramento, California
April, 1952

Kaiser Ridge in Sierra Nevada
Photo Courtesy Southern California Edison Co.

Proceedings

of the

WESTERN SNOW CONFERENCE

Sacramento, California

April 21-22, 1952

TWENTIETH ANNUAL MEETING

William A. Lang, General Chairman

Program Committee

Fred A. Strauss
Lloyd H. Magar
Eugene L. Christian
Harlowe M. Stafford

Publication Committee

Homer J. Stockwell
Harry W. Oliver
Fred A. Strauss

WESTERN SNOW CONFERENCE

Table of Contents

April 21-22, 1952

Sacramento, California

	Page
FORECASTED TEMPERATURE AND SNOW MELT FLOODS--Robert W. Gay, Hydrologist, Region 1, U. S. Bureau of Reclamation, Boise, Idaho.....	1
SOIL PRIMING IN RELATION TO SNOW SURVEYS AND FLOOD REGULATION (ABSTRACT)-- Morlan W. Nelson, R. A. Work (Soil Conservation Service), and Dr. H. G. Wilm (U. S. Forest Service).....	10
THE RELATIONSHIP OF PRECIPITATION INTENSITIES TO AVALANCHE OCCURRENCE--M. M. Atwater, U. S. Forest Service, Alta, Utah.....	11
SHORT-TERM FORECASTING OF SNOWMELT RUNOFF--W. H. Garstka, F. A. Bertle (U. S. Bureau of Reclamation, Denver, Colorado and E. G. Dunford (Rocky Mountain Forest and Range Experiment Station, Fort Collins, Colorado.....	20
USE OF SOOT FOR SNOW REMOVAL PURPOSES--W. A. Lang, Chief Hydrographer, Southern California Edison Company, Los Angeles, California.....	29
DISCUSSION--Dr. R. W. Gerdel, Chief, Field Operations and Analysis Branch, Snow, Ice and Permafrost Research Establishment, Wilmette, Illinois.....	36
THE MISSION OF THE SNOW, ICE, AND PERMAFROST RESEARCH ESTABLISHMENT--Lt. Col. A. H. Lahlum, Commanding Officer, Snow, Ice and Permafrost Research Establishment, Wilmette, Illinois.....	38
SOME RESEARCH PROBLEMS IN SNOW MECHANICS AND THERMODYNAMICS--Dr. R. W. Gerdel, Chief, Field Operations and Analysis Branch, Snow, Ice and Permafrost Research Establishment, Wilmette, Illinois.....	41
ESTIMATING PRECIPITATION AMOUNTS AT SAN FRANCISCO FROM CONCURRENT METEOROLOGICAL VARIABLES--D. L. Jorgensen, U. S. Weather Bureau Forecast Center, San Bruno, California.....	45
DISCUSSION--Dr. Jenzy Neyman, Director, Statistical Laboratory, University of California, Berkeley, California.....	54
USE OF SNOW SURVEYS IN EVALUATING CLOUD SEEDING PROJECTS -R. T. Beaumont, Oregon Agricultural Experiment Station, Medford, Oregon; R. A. Work and W. T. Frost, Soil Conservation Service, Medford, Oregon; Manes Barton, Oregon Agricultural Research Foundation, Medford, Oregon.....	56
METHODS OF CLOUD SEEDING EVALUATION--R. D. Elliott, North American Weather Con- sultants, Pasadena, California.....	73
WATER PROBLEMS OF THE WEST--A. D. Edmonston, State Engineer of California, Sacramento, California.....	I

FOREWORD

This publication includes the available papers and discussions presented at the Twentieth Annual Meeting of the Western Snow Conference at Sacramento, California on April 20-21, 1952.

Papers entitled "Need for Intensified Snow Surveys in Years of Heavy Snow Cover" (R. A. Work, Soil Conservation Service, Medford, Oregon); "Instrumentation of the SIPRE Mirometrological Installation at the Central Sierra Snow Laboratory" (William H. Parrott, Snow, Ice, and Permafrost Research Establishment, Soda Springs, California); and "Some Variations in Density of New Fallen Snow" (William P. Lowry, Snow, Ice, and Permafrost Research Establishment, Soda Springs, California) were presented at the Conference meeting but are not available for publication.

The informal discussions of the papers presented at the meeting were for the purpose of stimulating questions from the floor and are therefore not set forth herein. Exceptions are the more formal discussions following the papers entitled "Use of Soot for Snow Removal Purposes" and "Estimating Precipitation Amounts at San Francisco from Concurrent Meteorological variables"

The banquet address "Water Problems of the West" by A. D. Edmonston, State Engineer of California, is set forth in appendix A.

The publication of this report is made possible through dues and registration fees from individual members of the Western Snow Conference and from the following organizations who have recently contributed to the Western Snow Conference or have purchased copies of former Proceedings.

Los Angeles Flood Control Dist., 751 S. Figueroa, Los Angeles, California
Oregon State College, Corvallis, Oregon
Modesto Irrigation District, Modesto, California
East Bay Municipal Utility District, Oakland, California
U. S. Bureau of Reclamation, Boulder City, Nevada
Upper Colorado River Commission, Grand Junction, Colorado
Colorado Experiment Station, Fort Collins, Colorado
State Engineer of New Mexico, Santa Fe, New Mexico
State Engineer of Wyoming, Cheyenne, Wyoming
Bonneville Power Administration, P. O. Box 3537, Portland 8, Oregon
Southern California Edison Co., P. O. Box 351, Los Angeles, California
California-Oregon Power Company, Medford, Oregon
Northern Colorado Conservancy District, Greeley, Colorado
Arkansas Valley Ditch Assoc., Thatcher Bldg., Pueblo, Colorado
J. G. Boswell Co., South Spring Street, Los Angeles, California
Colorado Fuel and Iron Corporation, Pueblo, Colorado
Pacific Power and Light Company, Portland, Oregon
City of Seattle, Department of Lighting, Seattle, Washington
General Electric Company, Hanford Works, Hanford, Washington
Salt River Valley Water User's Association, Phoenix, Arizona
Metropolitan Water Dist. 306 W. 3rd St., Los Angeles, California
Soil Conservation Service, Swan Island, Portland, Oregon
Public Service Company of New Mexico, Santa Fe, New Mexico
Utah State College, Logan, Utah
Washington Water Power Company, Spokane, Washington
New Mexico School of Mines, Socorro, New Mexico
Pacific Gas and Electric Company, 245 Market, San Francisco, Calif.
Dept. of Lands and Forests, Parliament Bldgs., Victoria, B. C., Canada
U. S. Bureau of Reclamation, Salt Lake City, Utah
Division of Water Resources, 401 Public Works Bldg., Sacramento, Calif.
Imperial Irrigation District, El Centro, California
U. S. Bureau of Reclamation, Boise, Idaho
State Engineer of Nevada, Carson City, Nevada
Tucker Sno-Cat Corporation, Medford, Oregon
University of Idaho, Moscow, Idaho
U. S. Geological Survey, Washington, D. C.
Nevada Experiment Station, Reno, Nevada

U. S. Bureau of Reclamation, 316 Customhouse, Denver, Colorado
Kern County Land Company, Bakersfield, California
Turlock Irrigation Company, Turlock, California
San Luis Canal Company, Los Banos, California
Dept. of Water and Power, City of Los Angeles, Los Angeles, California
Merced Irrigation District, Merced, California
North American Weather Consultants, Pasadena, California
City of San Francisco, California
Denver Water Board, City of Denver, Colorado
U. S. Bureau of Reclamation, Sacramento, California
SIPRE, U. S. War Department, Washington, D. C.
Meteorological Division, Government of Canada, Ottawa, Canada
University of Colorado, Boulder, Colorado
University of Washington, Seattle, Washington
New Mexico A and M College, Las Cruces, New Mexico
University of New Mexico, Albuquerque, New Mexico
University of Utah, Salt Lake City, Utah
Colorado School of Mines, Golden, Colorado
University of Kansas, Lawrence, Kansas

Correspondence should be addressed

to

WILLIAM A. LANG, General Chairman

P. O. Box 351

Los Angeles, 53, California