



# OKAYA

## 岡谷ロータリークラブ

- 会長／平沢清文
- 副会長／宮沢由己・小口泰史
- 幹事／河西 洋
- 会報・雑誌・広報委員長／佐藤有司

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- 例 会／毎週火曜日 PM12:30 ホテル岡谷

## 第 2399 回例会 2008 年（平成 20 年）9 月 2 日（火）

司 会： 唱 和：四つのテスト  
点 鐘：平沢清文 ゲ ス ト：シャー・シェイワト<sup>ラ</sup>・クマ君(米山奨学生)  
斉 唱：君が代、奉仕の理想 ラッキーNo.：20 小口成人  
皆 勤 祝：武井利夫 36 年、濱 俊弘 28 年、宮坂宥澄 18 年  
原 史郎 1 年、中嶋孝一 1 年  
誕 生 祝：坂井忠彦、小野 仁、小出 篤、佐藤有司  
結 婚 祝：笠原新太郎



誕生祝

### 会長挨拶

8/31(日)に RYLA in 下諏訪に 5 名で参加して来ました。宮坂宥澄会員には前日から 1 泊 2 日での参加、大変ご苦労様でした。立ち見が出るほどの盛況でした。

さて、福田総理の突然の辞職はびっくりしました。2 代続けての突然の辞職で日本はこれからどのように行っていくのか……。一生懸命やって頂きたいものです。

### 幹事報告

・次週 9/9(火)の例会は 9/11(木)マリオでの 3 クラブ合同例会の振替としてありません。

#### 例会変更

諏訪 RC=9/12(金)休日。 9/19(金)早朝例会に変更。

松本西南 RC=9/9(火)移動例会に変更。 9/16(火)夜間例会に変更。 9/23(火)法定休日。 ビジター受付は 9/9・16、12 時～13 時例会場にて。

### 委員会報告

社会奉仕委員会 10/19(日)午前 6:30 より 諏訪湖周一斉清掃が行われます。多くの方のご参加をお願いします。

## 総 会

国際ロータリーの定款改訂に伴う、岡谷ロータリークラブ定款の改訂が原案通り承認されました。 ※定款改訂後の内容は第 49 期クラブ計画書をご覧ください。

## 卓 話 「Chemical dynamics of snowpack in mountainous region, Northern Japan Alps」

「北アルプスの山岳域における積雪中の化学物質動態」



米山奨学生

シャー・シェイレントラ・クマー様

### Introduction

Many studies have been carried out to detect the chemical dynamics of snow and snow meltwater in snowy cold area.

However, it is difficult to clarify the exact time scale of the deposition in each layer of snowpack in high mountainous area throughout the year.

So far, very little information on the effects of ecosystems on the chemistry of snow and meltwaters for the sustainable environmental management.

Snowfall study had been carried out in the winter seasons of 2005/06, 2006/07 and 2007/08 at the Mt. Norikura (1590m and 2000m a.s.l.)

Snow sampling were performed in these three consecutive winter seasons and carried to the laboratory of hydrology for detailed study.

### Purpose of the study

〈The major purposes of the present study are;〉

To obtain information on the chemical mechanisms of snow through observation of the chemical characteristics in snowcover,

To clarify chemical characteristics in the snowpack by different snowfall type, which influenced by low pressure, winter monsoon pattern, wind direction and its courses of movement,

To find out the concentrations of chemical substances in the snowpack and its possible sources of origin, and

To clarify the chemical dynamics in the snowpack and the order in which different ions are flushed out from the snowpack during the snowmelt season, and their effects on environmental change.

### Experimental methods

The field experiment site is at the east side of Mt. Norikura (altitude:1590m)

〈Factors〉

Site observation: Meteorological observation devices were set up at the study site; air temperature and snow depth were measured automatically. Precipitation was measured with tipping bucket rain gauge set up at the Norikura station (altitude: 1440m)

Sampling procedure: Snow pit works were conducted in the flat and open space during the period of 2005/06 and 2006/07 until snow melt period May 11, 2006 and April 26, 2007.

Analytical procedure: pH, EC, and major ion concentrations were measured by pH meter (DKK-TOA: GST-5420C), electrical conductivity meter (DKK-TOA: CT-84101B) and ion chromatography (DIONEX: DX-500) respectively.

### Conclusive remarks ①

The snowfall observed in Northern Japan Alps was the characteristics of different chemical components brought in the case of low pressure system and winter monsoon pattern.

The low-pressure observed in early February 2006 and January, 2007 was developed rapidly in the vicinity of Japan and changed into winter monsoon pattern. About 60cm and 105cm snowfall deposited during this period.

A lot of  $\text{NO}_3^-$  and  $\text{SO}_4^{2-}$  deposited during low pressure in January 2007.

During the strong winter monsoon pattern, lots of sea salt substances deposited in the study area in 2007.

The variation of the EC in snowpack indicates that the first snowmelt occurred on February 21, and the peak of snowmelt season occurred after March 7.

### Conclusive remarks ②

Snow layers with remarkably high  $\text{SO}_4^{2-}$ ,  $\text{NO}_3^-$  and  $\text{Cl}^-$  concentrations were traced; the snow layers with high  $\text{SO}_4^{2-}$  concentrations were found to be disappear first.

The mass equivalent of  $\text{SO}_4^{2-}$  was flushed out at the rate of 65 % and other anion flushed out about 50% where as volume of water decreases at the rate of 25 % .

The orders of the ratio of decrease of anion as the snowmelt proceeded were  $\text{SO}_4^{2-} \rightarrow \text{NO}_3^- = \text{Cl}^-$ . The orders of this study result have differed from that of other reports (Brimblecombe *et al.*, 1985; Davies *et al.*, 1987; Suzuki, 1991).

Major reason for differentiation in order of flushout is that the degree of deposition of chemical substances differs during the process in which it transforms into granular snow particle (Suzuki, 2000). More data and a microscopic study at the snow particle level are required to confirm the order in which the ions are flushed out from the snowpack.

### Acknowledgements

I would like to express heartfelt gratitude to my supervisor Dr. Keisuke Suzuki for providing doctoral study opportunity, inspiring research discussions, and encouragement to follow my interests in the field of snowpack hydro-chemistry.

Dr. Motoki Tanaka and Dr. Takayuki Kuramoto have been most obliging in the experimental results discussion and support on research article writings and publications.

I am in dept to all the kind people at Department of Environmental Sciences, International student center, Professors and officers of the Shinshu University.

I also wish to acknowledge Japan Student Services Organization (JASSO), Takasawa Sangyo Inc. and Rotary Yoneyama Memorial Foundation Inc. for providing scholarships that supported my study and living costs in Japan.

Yucho Miyasaka is acknowledged for his moral support as a local parents and the arrangement of various activities during my Rotary scholarship periods. Thank you

## 「カウンセラー捕捉」 宮坂宥澄 会員

テーマ「環境科学に関する研究」

日本の山岳地域の積雪中の成分を分析することで、世界の各地域から風向き等で日本に汚染の影響を及ぼす度合いがよく分かった。

これからは、世界中の各地で環境汚染の原因を調べ地球環境がきれいに回復するように、研究発表を行い、世界各地の人々にアピールしていきます。

## ニコニコボックス

井上保子・今井 紅・牛山幸一・太田博久・小口哲男・小口泰史・小野 仁・河西 洋・笠原祥一・北澤洋之介・北村正春・小松正二・佐藤有司・白鳥修次・高木昭好・竹村一幸・濱 透・濱 俊弘・林 尚孝・林 裕彦・林 靖高・平沢清文・藤森睦美・宮坂宥澄・宮沢由己・矢崎宏明・山岡晴男・山岡正邦・山崎典夫 米山奨学生 シャー・シェインドラ・クマーさん、理学博士号取得おめでとうございます。

宮坂宥洪 久しぶりです。メーキャップで皆勤にはなっています。

太田博久 おかげさまでこの9月で創業83年になりました。

原 史郎 おかげさまで創業24年を迎える事ができました。ありがとうございます。

山岡晴男 9月が創業記念月です。

## 出席報告

会員数51名、出席者40名、出席率78.34%、前々回訂正88.24%

2008-2009年度R I テーマ  
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