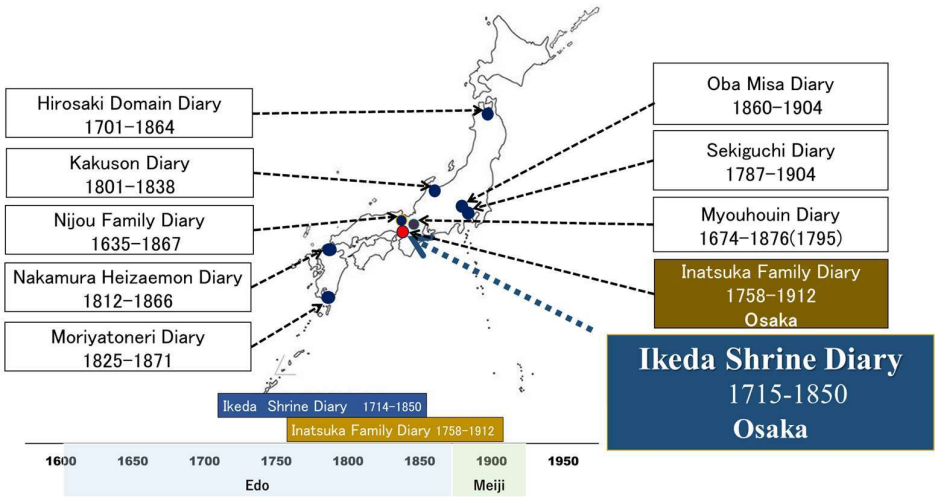
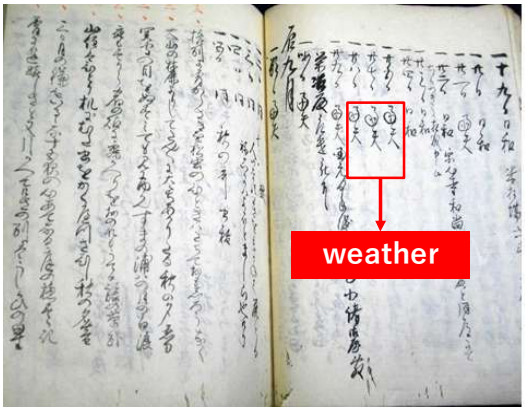
We wanted to reconstruct the weather using old diary weather records.





All of the diary weather records were entered into excel.

There are many old diaries in Japan. We wanted to reconstruct the weather using old diary weather records.
And this year, we attempted to reconstruct long-term weather conditions by connecting two old diaries that were written at different times.

Definition of the detail rate

We wanted to restore the precipitation occurrence rate in the Inatsuka Family Diary by Piani's method, and also the period from 1715 to 1757 by Piani's method, assuming the overlapping restored values with the Ikeda Shrine Diary as positive.

Definition of the detail rate

Percentage of days with
❶multiple types of weather conditions, such as“heavy rain”, rather than a single word such as“sunny” or “rainy”.
❷ descriptions of temporal changes, and
❸ descriptions of the scale of precipitation,
(❶+❷ +❸)/Total days of record per year

Japanese calendar	weather description
(Kyoho17) July,16	❶朝六ツ時少夕立、天キ、
July,19	❷八ツ時ゟふり夜五ツ時迄ふり又少ふり、
July, 24	❸五ツ過ゟくもり少つヽふり八つ時ゟ暮方迄大ぶり、

※The higher the detail rate gets, the less likely it is to be overlooked, and the higher the precipitation occurrence rate gets.

Detail rate bias

Piani's method of removing bias

What is Piani's method?

In data with measured values, methods to bring predicted values closer to measured values are used

Process

- ・Diary precipitation occurrence rate
- ・Detail rate
- ・Measured value of restoration

multiple regression analysis

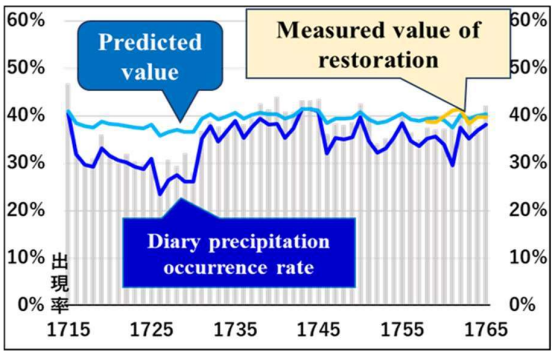
Predicted value

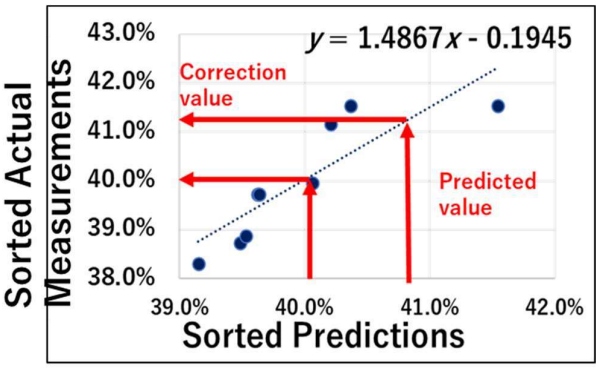
Sort the measured and predicted values

single regression analysis

Predicted values ⇒ Correction values

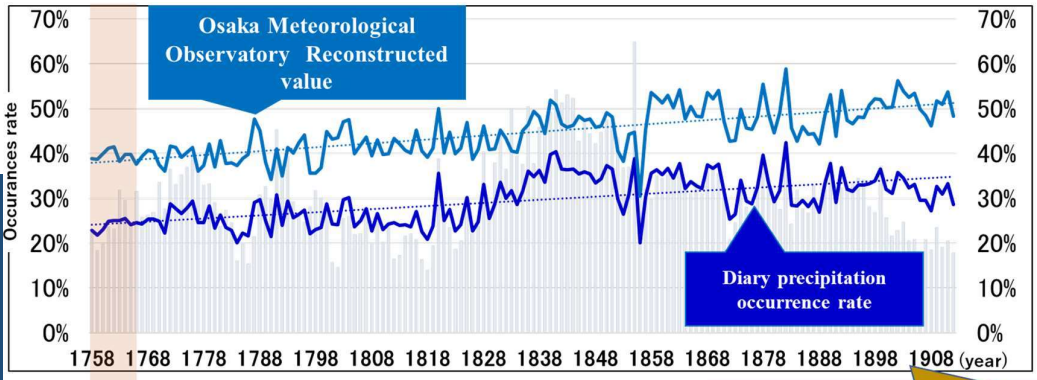
・Measured value of restoration



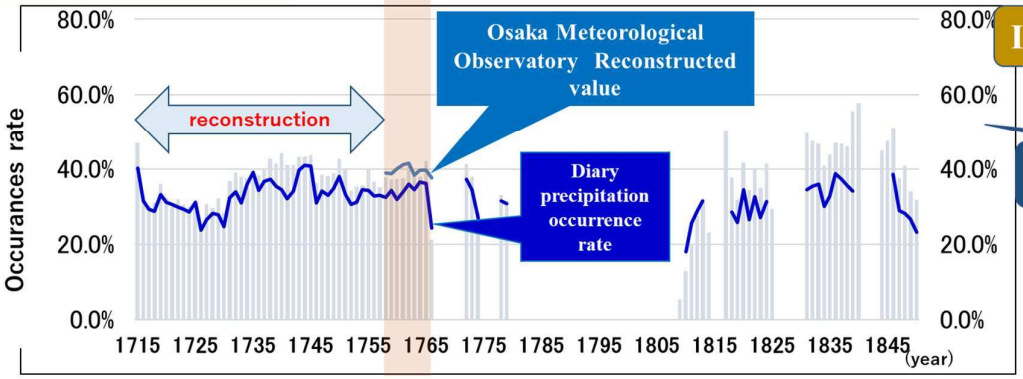


Restoration by Piani's method

1715–1766
The "detail rate" and the"diary precipitation occurrence rate" correlation coefficient 0.90



Inatsuka Family Diary



Ikeda Shrine Diary

※Restore the diary from 1715-1757 by using overlapping period of the two diaries.