Indian Journal of Traditional Knowledge
Vol. 8 (4), October 2009, pp. 621-625

Traditional almanac predicted rainfall – A case study

S Sivaprakasam & V Kanakasabai*
Department of Civil Engineering, Annamalai University, Annamalainagar 608 002, Tamil Nadu
E-mail: vkhdce@yahoo.com

Received 24 November 2006; revised 5 April 2008

Rainfall occurring over a place is very important from water resources planning and management point of view. The prediction of rainfall further helps in planning the activities of agriculturists, builders, water supply engineers, and others. At present the Meteorology Department is informing only short term forecasting about weather but long term forecasting is needed for planning. This can be achieved by two methods, namely traditional forecasting and scientific weather forecasting. Traditional forecasting is based on observations and experience using combinations of plants, animals, insects, meteorological and astronomical indicators, and almanacs or panchangs over a period of time. The scientific weather forecasting is based on past records of climate prevailed in the area using mathematical models. During the study, the rainfall prediction by one of the traditional almanac or *panchang* is studied in depth by considering the actual rainfall occurred over Tamil Nadu for one cycle of 60 Tamil years corresponding to the Christian era from 1936-1995. Graphs showing the trends of prediction and actual were drawn, which indicated the same pattern in both.

Keywords: Almanac, *Panchang*, Rainfall predication, Tamil Nadu
IPC Int. Cl.[8]: G01W1/14

Rainfall prediction or forecast is defined as *to tell before hand when, where and how it would rain*. Unfortunately, even though advanced technology, including the use of satellites and statistical monsoon prediction models exists, a great deal of credibility is still placed by some individuals on astrology even today. For thousands of years, India has been using astrology, study of clouds, examination of winds and observations of nature for forecasting of rain. *Rig Veda* and *Upanishadas* contain discussion about the cloud formation and rain. Chanakya described in detail the rainfall and its measurement, prediction of rainfall in 3rd century BC[1]. In *Brihat Samhita*, Varahamihira (505-587 AD) had mentioned the science of forecasting rain and its measurement in the unit of *adhaka*. In chapter XXI, the couplets 9-12 portrays that *the clouds that are formed in the first half of Chaitra* (April) *will yield water in the latter half of Ashwin* (September) *and those that are formed in the latter half of Chaitra will rain in the first half of Karthika* (October). Parashara's technique of rain forecast is based on the positions of the sun and the moon[1]. The Classical Hindu astrological almanac known as *Panchang* had been prepared for public use from Vedang Jyotish period (1,400–1,300 BC). The book published yearly gives information on daily basis and extensively used by the astrologers for making astrological calculations and the farmers to start the farming activity based on the prediction of rainfall[2]. This practice of referring to zodiacal signs continues to this day even in the United States, which publish the popular *Farmer's Almanac* for the past consecutive 170 yrs. Based on folklore, astrology, rituals and ancient literature, 30 odd *panchangs* are in force across the country, which are the closest equivalents to the *Farmer's Almanac*.

The ancient methods of weather forecasting cannot be altogether ignored and there is need to identify and test old literature and oral traditions across different climatic zones[3]. Some researchers have looked into this aspect of the weather forecasting in India and undertook a comparative study[4]. They selected four oldest *panchangs* of Varanasi and then matched/ correlated the rainfall predictions made in *panchangs* with the actual rainfall recorded by the IMD for Varanasi region. The yearly fully corrected predictions of rainfall reported in that study were 75, 78, 74 and 75%, respectively. Attempt has also been made to see the variation of rainfall amount based on *Nakshatra*[5]. Keeping the above facts in mind, an almanac popular in Tamil Nadu

*Corresponding author

Table 1— One cycle of 60 Tamil Years, corresponding christian era, king, minister, megathipathy, cloud type, almanac and actual rainfall details

Year		King	Minister	*Megathipathi*	Megam (Cloud type)	Almanac Rainfall (*Marakkal*)	Actual Rainfall (mm)
Tamil	Christian Era						
Dhathu	1936-37	Saturn(2)	Moon(6)	Saturn(2)	Kaala(5)	2	930.6
Eswara	1937-38	Moon(6)	Saturn(2)	Sun(3)	Drona(4)	3	1016.7
Vegudanya	1938-39	Venus(4)	Mercury(4)	Saturn(2)	Pushkala(3)	4	862.1
Pramaathi	1939-40	Mercury(4)	Jupiter(5)	Mercury(4)	Samvartha(2)	3	1015.1
Vikrama	1940-41	Saturn(2)	Saturn(2)	Saturn(2)	Avarta(1)	0	1103.0
Vishu	1941-42	Venus(4)	Sun(3)	Venus(4)	Dhamo(0)	4	978.5
Chitrabanu	1942-43	Saturn(2)	Moon(6)	Sun(3)	Vaayu(8)	2	1097.7
Subanu	1943-44	Moon(6)	Saturn(2)	Moon(6)	Varuna(7)	3	973.0
Tharana	1944-45	Saturn(2)	Jupiter(5)	Saturn(2)	Neela(6)	1	1138.6
Parthiba	1945-46	Moon(6)	Venus(4)	Mercury(4)	Kaala(5)	4	804.9
Viya	1946-47	Mercury(4)	Saturn(2)	Venus(4)	Drona(4)	3	1392.4
Sarvachithu	1947-48	Sun(3)	Sun(3)	Saturn(2)	Pushkala(3)	1	825.9
Sarvathari	1948-49	Saturn(2)	Saturn(2)	Sun(3)	Samvarta(2)	1	875.5
Virodhi	1949-50	Mercury(4)	Mercury(4)	Moon(6)	Avarta(1)	8	814.3
Vikruthi	1950-51	Sun(3)	Jupiter(5)	Jupiter(5)	Dhamo(0)	1	851.9
Kara	1951-52	Saturn(2)	Venus(4)	Jupiter(5)	Vaayu(8)	1	787.7
Nandhana	1952-53	Mercury(4)	Sun(3)	Venus(4)	Varuna(7)	3	734.2
Vijaya	1953-54	Moon(6)	Moon(6)	Sun(3)	Neela(6)	3	1033.6
Jaya	1954-55	Sun(3)	Saturn(2)	Moon(6)	Kaala(5)	2	1003.4
Manmadha	1955-56	Venus(4)	Mercury(4)	Saturn(2)	Drona(4)	4	866.8
Dhurmugi	1956-57	Jupiter(5)	Venus(4)	Jupiter(5)	Pushkala(3)	4	1001.6
Avilambi	1957-58	Moon(6)	Saturn(2)	Venus(4)	Samvarta(2)	3	931.5
Vilambi	1958-59	Venus(4)	Sun(3)	Sun(3)	Avarta(1)	1	700.9
Vikari	1959-60	Jupiter(5)	Mars(1)	Moon(6)	Dhamo(0)	4	900.1
Saarvari	1960-61	Moon(6)	Mercury(4)	Mars(1)	Vaayu(8)	3	1075.6
Pilava	1961-62	Venus(4)	Jupiter(5)	Mercury(4)	Varuna(7)	4	926.4
Subakirudhu	1962-63	Jupiter(5)	Venus(4)	Jupiter(5)	Neela(6)	4	984.9
Sobakiruthu	1963-64	Mars(1)	Sun(3)	Saturn(2)	Kaala(5)	2	950.3
Krothi	1964-65	Moon(6)	Moon(6)	Sun(3)	Drona(4)	3	872.1
Visuvavasu	1965-66	Venus(4)	Mars(1)	Moon(6)	Pushkala(3)	4	941.2
Parabava	1966-67	Mercury(4)	Mercury(4)	Mercury(4)	Samvarta(2)	3	1199.4
Pilavanga	1967-68	Moon(6)	Venus(4)	Jupiter(5)	Avarta(1)	3	1019.3
Keelaga	1968-69	Venus(4)	Saturn(2)	Venus(4)	Dhamo(0)	4	709.7
Sowmiya	1969-70	Mercury(4)	Sun(3)	Saturn(2)	Vaayu(8)	3	1068.6
Sadharana	1970-71	Mars(1)	Moon(6)	Moon(6)	Varuna(7)	2	964.5
Virodhikirudh	1971-72	Saturn(2)	Mercury(4)	Mars(1)	Neela(6)	1	1049.6
Paridhabi	1972-73	Jupiter(5)	Jupiter(5)	Mercury(4)	Kaala(5)	4	990.2
Piramadheesa	1973-74	Mercury(4)	Venus(4)	Jupiter(5)	Drona(4)	3	927.1
Anandha	1974-75	Sun(3)	Saturn(2)	Saturn(2)	Pushkala(3)	1	700.0
Rakshasa	1975-76	Saturn(2)	Moon(6)	Sun(3)	Samvartha(2)	1	901.5

Contd

Table 1— One cycle of 60 Tamil Years, corresponding christian era, king, minister, megathipathy, cloud type, almanac and actual rainfall details

Year		King	Minister	*Megathipathi*	Megam (Cloud type)	Almanac Rainfall (*Marakkal*)	Actual Rainfall (mm)
Tamil	Christian Era						
Pingala	1977-78	Sun(3)	Mercury(4)	Mercury(4)	Dhamo(0)	1	1188.7
Kalayukthi	1978-79	Saturn(2)	Jupiter(5)	Jupiter(5)	Vaayu(8)	1	997.9
Chitharthi	1979-80	Jupiter(5)	Saturn(2)	Venus(4)	Varuna(7)	4	1129.8
Routhri	1980-81	Moon(6)	Sun(3)	Saturn(2)	Neela(6)	3	637.0
Thunmathi	1981-82	Sun(3)	Moon(6)	Moon(6)	Kaala(5)	1	913.7
Thundhubi	1982-83	Venus(4)	Mars(1)	Mars(1)	Drona(4)	4	719.6
Ruthrothkari	1983-84	Jupiter(5)	Jupiter(5)	Mercury(4)	Pushkala(3)	4	964.1
Rakthakshi	1984-85	Moon(6)	Venus(4)	Jupiter(5)	Samvarta(2)	3	921.2
Krodhana	1985-86	Venus(4)	Saturn(2)	Saturn(2)	Avarta(1)	4	950.9
Akshaya	1986-87	Jupiter(5)	Moon(6)	Sun(3)	Dhamo(0)	4	749.7
Prabhava	1987-88	Moon(6)	Mars(1)	Moon(6)	Vaayu(8)	3	919.1
Vibhava	1988-89	Venus(4)	Mercury(4)	Mars(1)	Varuna(7)	4	739.9
Sukhila	1989-90	Venus(4)	Jupiter(5)	Jupiter(5)	Neela(6)	4	831.3
Pramodhuda	1990-91	Mars(1)	Saturn(2)	Venus(4)	Kaala(5)	2	557.9
Prjothpathi	1991-92	Sun(3)	Sun(3)	Saturn(2)	Drona(4)	1	873.3
Aangirasa	1992-93	Saturn(2)	Moon(6)	Sun(3)	Pushkala(3)	1	844.9
Srimuga	1993-94	Mercury(4)	Mars(1)	Mars(1)	Samvarta(2)	3	976.0
Paava	1994-95	Mars(1)	Jupiter(5)	Mercury(4)	Avarta(1)	2	825.4
Yuva	1995-96	Saturn(2)	Venus(4)	Jupiter(5)	Dhamo(0)	1	882.1

is considered in the study to review the rainfall prediction for a period of 60 yrs from 1936-1995.

Almanac details

The *panchang* considered in the study is called as *Asal 28 No Manonmani Vilasa Suddha Vakiya Panchangam*, a 150 yrs old almanac which is being prepared for the King of Tanjore in Tamil Nadu, on the theory suggested by Parashara having a particular planet as a ruler, another planet as a minister, and a particular cloud defining the amount of rainfall for every year. Even today, many people are using this almanac widely for varied reasons like astrological calculations, casting horoscopes, prediction of rainfall and farming activity. In this almanac, every year a king, minister, *senathipathy, arkathipathy, sasyathipathi, dhanyathipathi, rasathipathi, neerasathipathi* and *megathipathi* will be selected from the list of ruling planets namely, sun, saturn, mars, mercury, moon, jupiter and venus. Likewise nine types of clouds namely, *Aavarta, Samvarta, Pushkara, Drona, Kaala, Neela, Varuna, Vayu,* and *Dhamo* were identified to predict the quantum of rainfall inline with four types of clouds suggested by Parashara. The cloud type is based on the remainder arrived by multiplying the number denoting the *Salivahana saka* of a year by 8 and dividing by 9. The amount of rainfall predicated is in terms of *marakkal*, which is 100 *yojanas* in height and 60 *yojanas* in width. *Kuruni, Pathaku, Mukkuruni* and *Thooni* are denoting 1,2,3 and 4 *marakkals*, respectively. Out of this rainfall predicted, 4 parts will fall on land, 6 parts on hills and the remaining 10 parts on ocean. Very rarely, higher quantities of rainfall up to 8 *marakkals* are also predicted in certain years. One cycle of 60 yrs, corresponding christian era, the king, the minister, the *megathipathi* type of cloud and rainfall predicted by the almanac are collected from old almanacs from 1936 - 1995 (Table 1).

Review of predicted rainfall

Varahamihihra defined the measure of rainwater quantity in terms of *adhaka*, which is equal to 1.6 cm of modern rainfall measurement. *Parashara* predicted the rainfall range from 50-100 such *adhakas* depending upon the positions of the sun and the moon, which is equivalent to 800-1,600 mm.

been shown (Fig. 4). The almanac predicted rainfall and actual rainfall occurred during the period 1936 - 1995 along with mean were also plotted and indicated (Figs.5,6)[7].

Conclusion

Some researchers have termed almanac as entirely vague and impossible to absolutely quantify the forecast[8]. Likewise, the *panchang* considered in the study also posses difficulty in quantifying the rainfall and in turn makes it difficult for comparison and correlation. The trends of graphs are following the same pattern, indicating the closeness of prediction against the actual. It may be inferred that the graph deviating much from the others portrays that the choice of cloud type based on the calculation from *Salivahana saka* year is not correct (Fig. 4). The rainfall occurred in 32 yrs is above the mean value and in the raining 28 yrs in the cycle considered is below the mean value. The almanac prediction indicates higher value for 37 yrs and lower value than the mean for 23 yrs, which

Table 2— Ruling planet of a year and the anticipated rainfall

Ruling Planet	Rainfall
Mars	Scanty
Saturn	Very low
Sun	Moderate
Mercury, Venus	Good
Jupiter	Very Good
Moon	Very heavy

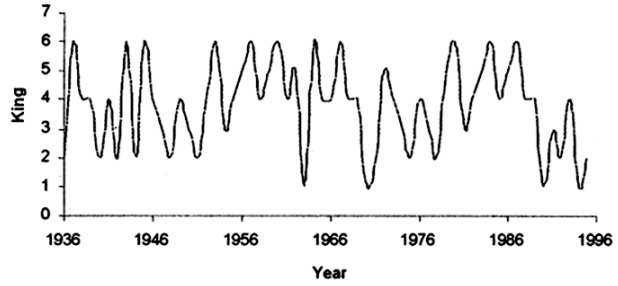

Fig. 1— King suggested in the Almanac

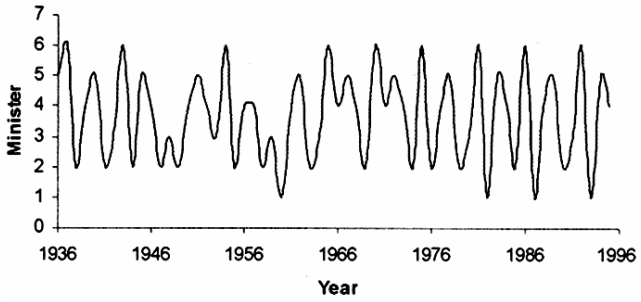

Fig. 2— Minister suggested in the Almanac

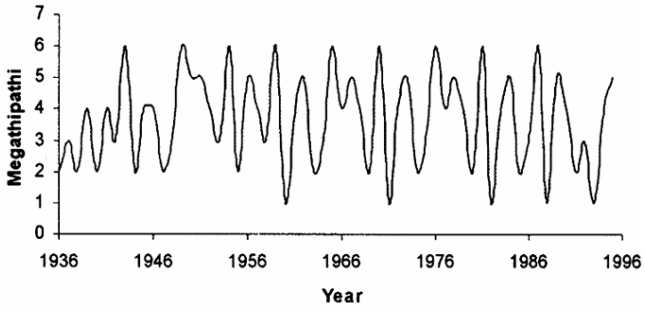

Fig. 3— Megathipathi suggested in the Almanac

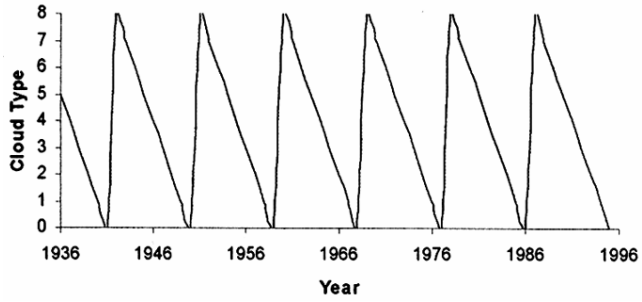

Fig. 4— Cloud Type suggested in the Almanac

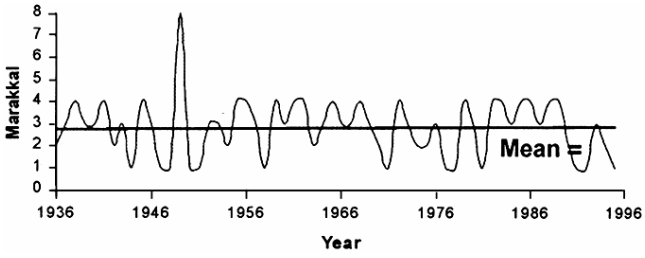

Fig. 5— Almanac Rainfall

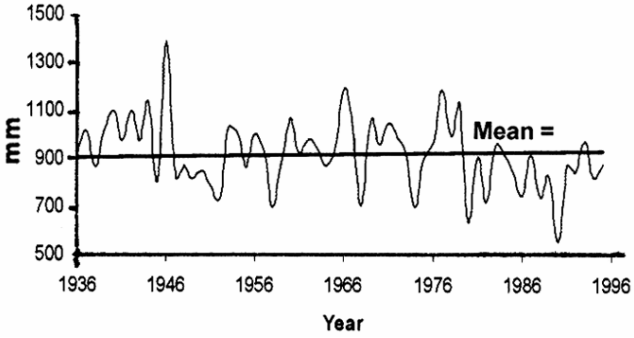

Fig. 6— Actual Rainfall

indicates another close agreement. The traditional methods of forecasting rainfall may be riddled with inaccuracies but they cannot be ignored altogether. The traditional wisdom may be explored with scientific knowledge to come out with an error-free system of forecasting, which is very crucial for a predominantly agricultural country like India that depends so much on the rains.

References

1 Moorthy Krishna V & Karwick Bhaskar, The Weather-Yesterday, Today and Tomorrow, *Com Feature Article*, Weather-June (2003), www.vigyanprasar.gov.in/comcom/featureb2.htm.

2 Bharadwaj Dinesh M, *Panchangam*–The Indian Almanac, About Astrology, (2004), www.explocity.com/channels/Astrology/Panchangam.asp.

3 Kanani PR & Pastakia Astad, Everything is written in the Sky!: Participatory Meteorological Assessment and Prediction based on Traditional Beliefs and Indicators in Saurashtra, *J Asian Int Bioethics*, 9 (1999) 170.

4 Misra SK, Dubey VK & Pandey RC, Rain Forecasting in Indian Almanacs (Panchangs): a case for making *Krishi-Panchang*, *Asian Agri Hist*, 6 (1) (2002) 29.

5 De US, Joshi UR & Prakasa Rao GS, *Nakshatra* based rainfall climatology, *Mausam*, 55, (2) (2004) 305.

6 Shah Manikant & Agarwal DP, Monsoon Muddle-2002: *Panchangs* & Meteorology, (2002), www.worldwidedirectory.com/asia/india/uttranchal/society/sciences/meteorology.

7 Sivaprakasam S, Correlation of Almanac Predicted Rainfall and Actual Rainfall, ME Thesis, (Department of Civil Engineering, Annamalai University), 2005.

8 Null Jan, Review of 1999-2000 Farmer's Almanac, Golden Gate Weather Services–Contact Information, (2001) http://ggweather.com/almanac/farmers.htm.