

## Indigenous Wisdom and Lore of Weather Forecasting in Oromo of Ethiopia: A Native Folklore of Arsi Oromo

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### Abstract

*This paper investigates into indigenous weather and climate forecasting practices among the Arsi Oromoo, a branch of Oromoo people in Oromiya region of Ethiopia in which Arsi zone is located. It focuses on selected villages and community members. It is designed to have a qualitative research approach. The fieldwork was conducted between December 2015 and August 2016. Focus Group Discussions (FGDs) and Key Informant Interviews (KII) were done. Elderly people were contacted as they have old memories and special care was taken to ensure gender balance. The study found that elders of the Arsi zone developed an amazing wisdom of observing natural indicators in forecasting weather condition. This wisdom must be preserved, documented and disseminated among the scientific community.*

Key words: Climate, weather, folkloric, Oromoo.

### I. Introduction

Modern meteorologists forecast weather by collecting data on climate indicators from the universe in advance. Weather forecasting is done by calculating meteorological facts from across the world and integrating the same with numerical weather conditions forecast models using high-end computing machines (Rautela, 2013). In this sense, weather forecasting is determined and known with systematic equipment and practices which are operated by experts. However, indigenous communities have their own wisdom and lore of weather forecasting. They use their long life experience and critical observations as indicators while predicting the climatic condition.

According to Rautela (2013), the knowledge of weather forecasting is largely based on keen observation of various faunal, floral and other physical changes in their surroundings that precede or accompany meteorological phenomenon. Weather forecasters' job is based on theoretical background and lab work which needs several years of study but mainly day-to-day practice inside a weather forecasting service having a specific technical environment (WMO, 2003). Weather forecasting plays a vital role in day-day activities of man. For instance, farming practice, climate change expectations, and environmental adaptations highly rely on weather forecasting. That's why WMO (2003) noted,

*“Even weather affects every single person on a 24-hour basis. The amount of food available for humans to eat around the planet depends on the weather, as do the types of food we eat, the types of houses we live in, the kinds of clothes we wear, the kinds of jobs we have, the ways we find recreation, and the weather even affects our moods, whether we feel good, sad, and so on. The trouble with the weather, however, is that no one can do anything about.”*

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Weather conditions have power on life in general and human society in particular. Floods, droughts, landslides, human health, biodiversity, endangered species, agriculture, livelihood and food security occur with climate change (Rautela, 2013). The worldwide warming happens to the worry of all inhabitants of the universe ([www.justdiggit.org/Global/Warming](http://www.justdiggit.org/Global/Warming), accessed on December, 2017). Thus, Oromoo people at large and Arsi region in particular remain to be dependent on their indigenous knowledge systems to survive. They have developed long lifespan experiences and cumulative lore which have passed from generation to generation via oral communications for dealing with natural risks. Almost all of Oromoo had farmers and semi-pastoralists that depended on rain for their agricultural activities. They have weather lore on forecasting and perception to foresee rainfall inconsistency.

However, this folklore of weather forecasting and related wisdom are undermined and are going to be lost. This folkloric study is, therefore, intended to collect and archive folklore of weather forecasting knowledge of the native people.

### *Objectives of the study*

The study aims to meet the following objectives: To investigate the way Oromoo people predict, monitor and diagnose climate; to elaborate indicators of weather; and, to assess the current status of indigenous wisdom of weather forecasting among elders of Arsi Oromoo, Ethiopia.

## **II. Methodology**

This study utilized purposive sampling method which enables analysis of qualitative data collected through in-depth interviews and FGDs. To this end, from 28 *kebeles*<sup>1</sup> in the district, five were purposively selected and local elders also picked up based on snowball sampling technique. This is for the sake of maximizing relevant representation based on prior knowledge. In addition, both first hand and secondary data sources of information have been used. Key Informant Interviews (KIIs), In-depth Interviews (IDIs) and Focus Group Discussions (FGDs) were employed as instruments of data collection during fieldwork. These methods provide an opportunity to investigate indigenous wisdom and lore of the native people in forecasting weather and climatic condition. Books, articles and internet sources were used as secondary data in this study. Finally, data collected via various tools were translated, interpreted and analysed qualitatively and cross-checking was done with related secondary data sources.

### *Study area*

This study was conducted in Digalu and Tijo of Arsi Zone. Arsi zone is located about 198 km southeast to Finfinnee at 07°45'N 39°09'E latitude and longitude, and its elevation/altitude is 2568 meter above the sea level. According to data from the Culture and Tourism Office, Arsi Oromoo people contribute to the establishment of the district. The area was covered by dense natural forests which were full of endogenous trees. Before the downfall of the monarchy in Ethiopia, the district re-established new emergence. During that time, the district and its surrounding areas were known by their high cattle population. Its surrounding areas were, by and large, sparsely populated and were covered with dense forest. Informed elders remember that there were wild animals which enjoyed what nature provided them.

The communities of the study area have used domestic animals like livestock, horses, donkeys, mules, sheep and goats. They tilled the land to cultivate grains like barley, wheat and beans. Thus, the society was characterized by mixed farming activities. However, this does not mean that the tenants were free to raise domestic animals and till the land to harvest what nature has given them. Rather, they lived under oppression of the landlords under the feudal system<sup>2</sup>.

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<sup>1</sup> *Kebelle* is the smallest administrative unit in Ethiopia.

<sup>2</sup> Interview with, Woyecha Berake Ayano, 2016.

Almost all the villages found within the vast areas are locally identified with the name of *Albaso* that stretches from Dialup from the eastern direction to Lama to the western direction and *Calcal* from the north and *chabi* from the southern direction were (and still are) fertile and the most productive areas at the then Arsi Teklygizat which was equivalent to present administrative zone status. Digalu and Tijo districts and surrounding hinterlands were rich and were enjoyed only by the landlord's family. According to the elders, Digalu and Tijo and surrounding hinterlands were owned by the families of a landlord named Girazmach Ogato Gutu and his representatives. The district and its localities were administered by individuals named Fitawurari Bekele Ogato (the elder son of the landlord), Haile Mariam Jarso and Kebede Ogato. They were in charge to take action they considered necessary<sup>3</sup>.

### III. Results and Discussion

This study discusses indigenous weather and climate forecasting in Arsi Oromoo. It describes weather indicators, its observation and prediction, significance of weather forecasting lore and its current status. Weather wisdom is the body of relaxed folklore correlated to the forecast of the weather conditions. Folkloric elements typically have some locally based observational validity. These enable them to know when to sow and harvest as well as perform ritual events.

#### *Arfaasee (Local name)*

The name *Arfaasee*<sup>4</sup> is derived from season named *Arfaasaa* (spring season) in Oromoo. *Arfaasee* has pink flowers. The plant appears only in *Arfaasaa* season with physical pointers. According to Arsi Oromoo, *Arfaasee*'s appearance and growing indicates that moisture in temperature is increasing and winter season is drawing to an end<sup>5</sup>. Again it is taken as the pointer of forthcoming rainfall based on high humidity<sup>6</sup>. As *Arfaasee* grows here and there in the field, the community says, "*Roobni dhihoo jira*", i.e., the rain is near. The flower is very soft which blooms in fine weather and withers when the climate is not good.

#### *Talbaa (Linseed)*

*Talbaa* is a cash crop used as an input to produce oil. The communities believe that the flower of *Talbaa*<sup>7</sup> forecasts weather conditions. If it loses flowers there are cold and rainy conditions. Inversely, when it flowers and becomes beautiful they predict no rain and good weather.

#### *Waleensuu (Erythrina)*

The fluctuating of the season can lead this plant to the loss of leaves totally. In its nature *Waleensuu* has wide leaves which are dropped during the winter. But when it re-grows the new and young leaves indicate the onset of spring season.

#### *Marga Araddoo (Local name)*

*Araddoo* is a type of grass which grows horizontally on the ground. It has the capacity to grow on the surface and suck up water during rainy season. However, in winter it becomes dry and drops leaves owing to cold and wind. Surprisingly *Araddoo* grass recovers or re-growth leaves which can be seen as the pointer of rainfall. Thus, the Arsi Oromoo says "*Roobni dhihoo jira*"

<sup>3</sup> Interview with Gulumma Jiranne, 2016.

<sup>4</sup> A kind of grass which is only seen during rainy or spring season.

<sup>5</sup> Interview with Haji Hasen Sheko Ukare, 2016.

<sup>6</sup> Interview with Sobboqaa Koorsa, 2016.

<sup>7</sup> The main cash crop in the district.

Table 1: Pointers of indigenous weather forecasting

English name/class	Local name of indicators	Critical observations	Signposts of weather forecasting
Rainbow	<i>Sabbata waaqaa</i>	Blocking rainfall	The rain will passed/blocked and stop at one area.
Unknown	<i>Arfaasee</i>	Appearance of Arfaasee flowers on the ground	Forecoming spring rain.
Plant	<i>Talbaa</i>	Close its flower	It will rain.
Grass	<i>Marga Araddoo</i>	Growing of <i>Araddoo</i> grass	Probability of rain.
Soil	<i>Biyyee</i>	Softness and simple excavation out of soil even with hand	Rain will come soon.
Unknown	<i>Barrisa</i>	Presence of <i>Barrisaa</i> birds in the farm land	No rain and the onset of summer season.
Unknown	<i>Rooba waamtuu</i>	Large number of Rooba waamtuu birds and flying here and there	Arriving of heavy rainfall in the future.
Cloud	<i>Duumessa</i>	Black/white	Black- heavy rainfall. White-no rain.
Sky	<i>Samii</i>	Clear sky	Winter will approach.
Coffee pot	<i>Xuwwee bonaa</i>	Spread out	Symbol of heavy rain.
Sun	<i>Biiftuu</i>	Redness	Heavy rain with thunderstorm, not good weather.
Unknown	<i>Raammoo Boggee</i>	If insects <i>Boggee</i> appear and sing	Arrival of spring season.
Butterfly	<i>Billaachoo</i>	Appearance and moving	Sign of good weather condition.
Wind	<i>Bubbee</i>	Wind west to east with high speed	Rain will come soon, in a few days/hours.
Donkey	<i>Harree</i>	When the donkey's ear points up repeatedly	Rain arrive within few days or hours.
Calf	<i>Jabbi</i>	Running here and there and enjoying	Good weather condition.

*araddoon latuu eegaleeraa*". This saying implies that the rain will come soon because *Araddoo*<sup>8</sup> has begun re-growing<sup>9</sup>.

#### Colour of cloud

The lore of weather forecasting uses cloud pattern and colour in predicting and controlling weather condition. To this end, the black and heavy cloud is an indicator of rainfall and sometimes thunderstorm<sup>10</sup>. On the other hand, the white cloud is a sign of dry condition and that there will be no rain. The Oromoo of study area says, "*Bona kaakkee*" to indicate the absence of rain. In addition, according to data from FGDs, the high-speed movement of clouds from the west to the

<sup>8</sup> A kind of grass which is taken as a symbol of prosperity in Oromo.

<sup>9</sup> Interview with Gulumma Jirannee, 2016.

<sup>10</sup> Interview with Askaalaa Damee, 2016.

east sometimes shows that heavy rainfall will come in a few hours. But if the clouds move from the east to the west, they predict no rain.

#### *Sky pointers*

The sky and its pattern are utilized as the pointer in weather forecasting. According to Arsi Oromoo when the sky appears clear and white, the weather will be good and dry. However, the red sky symbolizes rain and cold<sup>11</sup>.

#### *Biyyee (Soil)*

The Oromoo has close inter-connection with natural environment in general and soil in particular. It is closely connected to their culture and civilization in a given place, including their religion, thoughts, livelihood and health. To this end, the people said, “*Biyyee biyya koo*” which implies the soil of my country. It has a special place in their life as societal concept of soil. “*Biyyee irraa nyaatan; malee nyaatanii fixan; yoo du’an biyyeetu nama nyaata*”. These show as soil is the most vital and delicate natural resource in their daily life; even after death. They also use soil situation in weather and climate forecasting. Thus, elders predict weather conditions by digging or simply touching the soil. If it is easily dogged out by hand and becomes soft, rains will fall instantaneously. In addition, appearance of insects in the soil is a sign that the rainy season is imminent.

#### *Event-related indicators*

Arsi Oromoo have a long life potential of reading and predicting destiny in relation to weather condition. For instance, when the water has been plummeting repeatedly in a home, rain is about to begin.

#### *Star constellation*

In Oromoo world view, stars are components of their *Dhahaa* (calendar). Indeed, they have developed lifespan experiences to forecast weather via reading astronomical elements like stars<sup>12</sup>. For example, in Arsi the movement and arrangement of stars is used to predict weather conditions. The redness of stars means rains in the near future. Moreover, appearance of all the stars in the night shows good weather in the future.

#### *Insect-related indicators*

Insects are the other basic pointers of weather forecasting among the Arsi Oromoo. These insects behave and act according to weather conditions. They collect food in unity when serious rain is expected in the future. Ants work hard and use time effectively. To testify this Oromoo says, “*Mixiin walqabatteeti laga ceeti.*” in their proverb. For this reason the Oromoo critically observe the behaviour of insects like ants and butterflies to forecast climatic condition<sup>13</sup>. In view of that, the appearance of butterflies in large number shows that the rain is approaching and spring season too. In addition, the migration of bees over and over again indicates the onset of the autumn season.

#### *The sun and moon*

The Arsi Oromoo follows the position and pattern of moon and sun as weather pointers. It is also associated with the rituals that are conducted in autumn, winter, summer and spring by

<sup>11</sup> Interview with Bayecha Horsa, 2016.

<sup>12</sup> Interview with Diribee Shugguu, 2016.

<sup>13</sup> Interview with Badhadha Magersa, 2016.

forecasting weather conditions. A ring around the sun or moon is a symbol of rain within a few days. Dry temperature is a sign of heavy rains in the future. Both the sun and moon have a vital role in weather forecasting.

#### *Bird-related indicators*

Bird behaviour is an indicator of weather forecasting. The peeping and flying around of *Rooba waamtuu* birds is an indicator of good rains in the future. These birds are not seen all the time and they generally live in caves<sup>14</sup>.

Eagles called *Culullee*<sup>15</sup> are utilized in weather forecasting. They do not search for food and fly during the summer season. They hunt and gather food in winter and save it for summer. This indicates that their life is season based. Therefore, local communities observe the appearance of these birds to predict climatic conditions. Moreover, migration of bird flock is a sign of drought and bad weather conditions.

#### *Performance of domestic animals*

All animals have a unique behaviour pattern. Domestic animals have a special relationship with human beings. In the study area, people observe behaviour of these animals to predict weather. In Arsi Oromoo, "*Jabbiileen*<sup>16</sup> oliif gadi yoo burraaqxe, haala qilleensaa namatti tolutu tilmaama" (running and enjoying of a calf is the pointer of good weather condition and wealth in the future). But restless and unsatisfied cattle are the pointer of serious summer season. The feeding of a hen in rains is also pointed out as the continuity of rains in the future.

### **IV. Significance of weather forecasting**

Native communities forecast weather conditions for various reasons. They rely on the farmers for rearing livestock and crop production. They utilize weather lore for their farm activities. Chang'a et al. (2010) state that being alert of regular forecast in order, only 58 per cent of them use such information to plan their farming activities. Weather information is one of the requirements for effective climate change adaptation in Ethiopia where agriculture is the backbone of the economy (Feleke, 2015). Based on the indigenous knowledge of weather forecasting, the farmers do practices or withdraw agricultural operations. To cite from these sayings, "*Gumgumee sidhageechisee; yaa booso bu'een siif ajjeeraaree jedhe waaqni*". This implies, the *Waaqaa* aware his creation through his language as one has to prepare himself and his shelter before rain come onto him. Thus, foolishness is not encouraged in human life. People need to know and read natural phenomenon including weather in order to survive. Accordingly, before the introduction of modern weather forecasting, the community knew when to apply fertilizer, harvesting and ploughing farmland. So the lore of indigenous people is crucial in agricultural activities and development.

In addition, communities have used indigenous weather forecasting wisdom and lore to practice the ritual celebrations. Thus, Arsi Oromoo celebrates rituals according to their indigenous calendar *Dhaha*<sup>17</sup>. Thus, they go to *Ayyantuu*<sup>18</sup> and *Maallimaa*<sup>19</sup> (master of time reckoning) who has a wisdom and knowledge regarding climate and weather forecasting before practicing a ritual. This knowledge enables them to act as weather and ritual timetable.

<sup>14</sup> Interview with Obse Sobbooga, 2016.

<sup>15</sup> A type of eagle which is only seen in winter, autumn and spring seasons.

<sup>16</sup> Calf.

<sup>17</sup> The Oromo calendar that is officially implemented by community.

<sup>18</sup> Ayyantuu means a person with special gift reckoning time according to calendar and seera Gadaa.

<sup>19</sup> A person who has the power to bring and block rain.

## Conclusion

The indigenous ways are pointers in weather prediction. Indeed, the people have used natural resources and phenomenon such as plants, flowers, animals, atmospheric indicators, stars, sun, wind direction and speed, etc. In supporting this idea, Roncoli et al. (2001) state that the local communities have developed a rich knowledge base of predicting climatic and weather events. They know when to cultivate and harvest crops, move with cattle which is culturally known as *godaanuu*<sup>20</sup> as well as schedule ritual practices in line with their home-based calendar.

However, this study has focused on Arsi Oromoo district owing to limitations of budget and time. Indigenous weather forecasting methods have not been cross checked with the modern scientific methods. Basu (1953) found no scientific basis for anticipation of weather in folklore in vogue. Hence, the results of this study may not be applicable in other areas.

Some of the suggestions emerging from the study are: encourage and promote indigenous wisdom of weather forecasting by integrating it with modern climatic and weather forecasting system; establish indigenous weather forecasting centres to effectively utilise the lore of the community; work with the local communities to minimize the gap between weather predicted by experts and reality on the ground; encourage the younger generation to sustain the indigenous knowledge from folklorists; and identify and record the forecasting pointers in folklore and promote their utilisation.

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<sup>20</sup> Gadamooyjii is one of the Gadaa grades from the age of 80-88.