

# **THE RELEVANCE OF STUDYING ASTRONOMY IN ISLAMIC UNIVERSITIES OF NIGERIA WITH PARTICULAR REFERENCE TO AL-QALAM UNIVERSITY, KATSINA**

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## **Abstract**

Astronomy is a science that studies the heavens in an effort to understand the underlying principles governing the behaviour of planets, stars, galaxies and the universe in general. The research is both empirical and theoretical in nature since both primary and secondary sources of data were collected and analyzed in writing the paper. The results identified the Islamic Universities of Nigeria and their programmes of study. The results further identified the place of astronomy in one of the Islamic universities as just a topic among the six topics that comprise the general studies course unit instead of a full pledge programme. Studying Astronomy has relevance to the Islamic universities because an understanding of the discipline is essential for the appreciation of the religion of Islam. Astronomy enables a Muslim to appreciate the oneness of Allah, the knowledge of Astronomy can be used to effectively serve Islam, Islam in general invites man to the study and understanding of the universe. Studying Astronomy in the Islamic universities has prospects as it will assist in resolving disputes associated with moon sighting for the months of Ramadan and Shawwal, many students have shown interest in studying Astronomy among others. There are however certain challenges such as funding of the Islamic universities, very expensive instruments and equipments used in Astronomy that should be overcome for astronomy to be among the programmes to be studied in Islamic universities of Nigeria.

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**Keywords:** Relevance, Studying, Astronomy, Islamic, Universities, Nigeria

## **Introduction**

Astronomy is the scientific study of the universe and of objects that exist naturally in space, such as the moon, the sun, planets and stars. It is a natural science that is concerned with the evolution, physics, chemistry,

meteorology and motion of celestial objects, as well as the formation and development of the universe in general (Cambridge, 2015).

Astronomy is one of the oldest sciences as several prehistoric cultures left behind astronomical artifacts such as the Egyptian monuments and British Stonehenge, and early civilizations such as Babylonians, Greeks, Chinese and Indians noticed patterns in the sky and attempted to organize them in order to track and predict their motion (Redd, 2015).

Astronomy has been called the “Queen of science” as it incorporates many disciplines such as physics particularly optics, mathematics and celestial mechanics (Ummah, 2010). Since ancient times, Muslim scientists have studied astronomy contributing greatly to human knowledge. The Quran deals with many areas of science such as the geology of the earth, the animal and vegetable kingdom, human reproduction and astronomy (Haque-Copilah, 2010). Islam as a religion invites man to the study and understanding of the heavens. An understanding of the discipline of astronomy is essential for the appreciation of the religion of Islam. The Holy Qur’an shows many surahs beginning with astronomical references. It would therefore seem natural that astronomy should get its impetus first and foremost from Muslim scholars (Haque-Copilah, 2010).

It is based on the above, that this paper examines the relevance of studying Astronomy in Islamic universities of Nigeria with particular reference to Al-qalam University Katsina. The Islamic Universities of Nigeria are a recent addition to the conventional universities in the country. Katsina Islamic University, Katsina State recently renamed Al-Qalam University is the first Islamic University in Nigeria.

## **Methodology**

The research is both empirical and theoretical in nature since both primary and secondary data were collected and analyzed in writing the paper. One of the primary sources of data is observations made by the author as a course lecturer in Al-Qalam University Katsina for the course unit Science, Technology and Society (GSP 2203) which has astronomy among the course outline. Data were obtained from the experience of the author as a lecturer for the course unit for a period of eight years from 2007 -2014. This data involved interactions with 200 Level students of B.A Arabic, B.A English, and B.A Islamic Studies who offer the course and have shown interest in studying astronomy as a full pledged programme.

The secondary sources of data include internet sourced materials, textbooks, the Holy Quran, international television stations, student’s publications, published proceedings of conference papers which were used to complement the primary sources of data. The data collected was then edited, analyzed and presented using descriptive analysis in form of discussions.

## **Objectives of the study**

The objectives of the study are to:

- (i) Identify the Islamic Universities of Nigeria and their programmes of study.
- (ii) Highlight the contributions of Muslim scholars to the development of Astronomy.
- (iii) Identify the place of Astronomy in one of the Islamic Universities
- (iv) Briefly explain Astronomy as a discipline in universities
- (v) Explain the relevance of studying Astronomy to the Islamic Universities in Nigeria.
- (vi) Highlight the prospects and challenges of Astronomy as a discipline in Islamic Universities
- (vii) To make recommendations on how to overcome the challenges facing studying Astronomy in the Islamic Universities.

## **Islamic Universities in Nigeria**

In Nigeria, there is high demand for university education in the last two decades mainly due to greater awareness from the people on the importance of knowledge through university education and the relevance of the university system as a tool for socio-economic empowerment in an increasingly globalised world economy (Badamasi, 2010). Furthermore there is a growing increase in the number of prospective candidates for admission into universities and the existing public universities have been unable to cope with the increasing demand for admissions. It is based on this fact that the Federal Government of Nigeria allowed the setting up of private universities by interested and capable individuals, groups and organizations. The Islamic universities are among the universities that were set up from the year 2005. These universities include Al-Qalam University Katsina (Katsina State), Al-Hikmah University Ilorin (Kwara State), Crescent University Oshogbo (Osun State) and Fountain University Abeokuta (Ogun State).

## **Al-Qalam University Katsina, Katsina State**

Al-Qalam University, Katsina (formerly Katsina University, Katsina) was founded by Katsina Islamic Foundation based in Katsina in January 2005 with academic activities taking off in October of the year. The university has the pride of being the first Islamic University in Nigeria. The main distinguishing feature between the university and other conventional universities is the conduct of moral and academic regulations. This is expected to raise an educated, morally sound and Allah fearing society which is the pride of any community or nation (AUK, 2014). The university commences academic activities with two faculties that offer four

undergraduate programmes of studies namely Arabic, English. Islamic Studies and Computer Science.. However from the 2013/2014 session the number of faculties increased to four faculties that offer twenty three programmes of studies. The university also has a School of General Studies and Pre-degree programme. In the Faculty of Natural and Applied sciences the programmes are BSc. Biology, BSc Chemistry, BSc Environmental Health, BSc Computer Science, BSc Mathematics and BSc Physics. There is no BSc Astronomy among the programmes.

### **Al-Hikmah University Ilorin, Kwara State**

Al-Hikmah University was founded in January 2005 by Abdul-Raheem Oladimeji Islamic Foundation (AROIF) based in Ilorin, Nigeria and World Assembly of Muslim Youth (WAMY) based in Jeddah, Saudi Arabia. The university is based in Ilorin Kwara State capital with a well articulated mission of promoting both academic and moral excellence for the good of the Nigerian nation in particular and for furthering the cause of humanity in general (CVC, 2014). The overall goal of the university is summed up in its motto “Learning for wisdom and morality”. The curriculum is geared towards promoting academic excellence and also ensuring moral and spiritual rightness of the youth, most especially in the face of imposing vicious challenges posed to humanity at large at the wake of the 21<sup>st</sup> century (CVC, 2014). The university commenced academic activities during the 2005/2006 academic session with three faculties. One more faculty was added by the beginning of 2012/2013 session. The four faculties offer fourteen first Degree programmes of studies. In the faculty of Natural and Applied Sciences, there is no Astronomy among the programmes.

### **Crescent University Abeokuta, Ogun State**

Crescent University Abeokuta, Ogun State was founded by Islamic Mission for Africa (IMA) in June 2005 with academic activities commencing in December. The mission of the university is to ensure the delivery of university education in ways that recognize personal discipline and integrity and promote societal values. The university is out to assist in closing the widening gap between attainable potential student population and limited space in Nigerian educational system (UIN, 2014). The university presently has three faculties for undergraduate programmes which are seven in number. The university has a Postgraduate School that offer Postgraduate Diploma (PGD) and Master’s Degree programmes which are twelve in number which gives the total number of nineteen programmes (CUA, 2014). This is the only university among the Islamic universities that offers programmes at Postgraduate level. However, at the undergraduate level, the

programmes are in Biological and Chemical Sciences, with no Astronomy being offered.

### **Fountain University Oshogbo, Osun State**

Fountain University Oshogbo, Osun State was founded by Nasrul-Lahi-II-Fatih Society of Nigeria (NASFAT), a leading Islamic society in Nigeria. The university was founded in May 2007 and commenced academic activities in January 2008 with two faculties of Management and Social Sciences and Natural and Applied Sciences. The main objective of the university is to provide competitive and resourceful graduates with high moral standards. The university provides high level of teaching and learning opportunity for all people irrespective of race, tribe, religion or political inclination which is being achieved through effective programmes and services based on the provision of adequate facilities as well as professionally qualified and competent staff (FU, 2014). The two faculties of the university offered a total of 11 programmes and Astronomy is not among the programmes.

The four Islamic universities in Nigeria can be seen on table 1 below:

Table 1: Islamic Universities of Nigeria

S/N	Name of Islamic University	Year Founded	Ownership	No. of Programmes
1	Al-Qalam University Katsina, Katsina State	January 2005	Katsina Islamic Foundation, Katsina	23
2	Al-Hikmah University Ilorin, Kwara State	January 2005	AROIF Ilorin and WAMY Jeddah	14
3	Crescent University Abeokuta, Ogun State	June 2005	Islamic Mission for Africa, Abeokuta	19
4	Fountain University Oshogbo, Osun State	May 2007	NASFAT Oshogbo	11

Source: Data Analysis, 2014.

From the table above it can be observed that three out of the four universities were established in the year 2005 with one established in the year 2007. On regional basis, there are two each in both northern and southern Nigeria. Al-qalam university has the highest number of academic programmes (23), followed by Crescent University and Al-hikmah University. Fountain University has the least number of programmes, however the university has proposed to create faculties of Arts, Engineering and Education which will in the near future increase the number of programmes.

### **Contribution of Muslim Scholars to the Development of Astronomy**

The history of Islam has revealed about Islamic scientists who contribute to the discipline of Astronomy. This development was

particularly made by Muslims in the Arabian Peninsula, Muslim Spain in the 8<sup>th</sup> to 15<sup>th</sup> century C.E. (Abdul-Hamid, 2008).

In Astronomy, the Muslim scientists integrated the astronomical traditions of the Indians, Persians, the ancient Near East and especially the Greeks from the 8<sup>th</sup> century onwards in the pre-Islamic world (Haque-Copilah, 2010). Contributions of Astronomy by Muslims scholars naturally include contributions to Geography, Mathematics and Physics that are indispensable tools for the study of Astronomy (Haque-Copilah, 2010).

The following are the most important contributions made by Muslim scholars to the development of Astronomy.

(i) Muslim Astronomers lay emphasis on Observational Astronomy which led to the emergence of the first astronomical observations in the Muslim world by the early 9<sup>th</sup> century C.E. For example, Abbasid Caliph al-Ma'amun set up two astronomical observatories on Mount Qasi'un in Damascus (Syria) and Al-Shamsiyya in Bagdad (Iraq) which influence the building of several observatories in different areas throughout the Muslim world (Islamweb,2015).

(ii) One of the Muslim Astronomers Umar Al-Khayyam in his astronomical observatory made significant researches on the rotation of the planets around the sun. The Muslims in the Observatories carry out calculations on the earth circumference, the degree length of the earth's meridian, investigated the stars and made observations that were contained in astronomical tables called Zij (Haque-Copilah, 2010).

(iii) In the late 9<sup>th</sup> century, Persian Astronomer Ahmad al-Faghani wrote extensively on the motion of celestial bodies in his book Sky Movements and Science of Star Codes. He corrected previous astronomical data, proved the spherical shape of the Earth based on the observation of heavenly bodies and forecasted the solar eclipse of 812 (Usbekistan,2015). Later another Persian Astronomer Abu Mashar Al-Balkhi developed a planetary model which has been interpreted as a heliocentric model.

(iv) In the 10<sup>th</sup> century, Abdal-Rahman Al-sufi carried out observations and descriptions of the stars, their positions, their magnitudes (brightness) and their colour, setting out his results constellation by constellation. For each constellation he provided two drawings, one from the outside of a celestial globe one from the inside as seen from the sky (Chauhan,2015).

(v) One of the famous achievements of the Muslim Scholars was the development of Optics science by Ibn Al-Haytham in 1039 CE. This gave rise to the development of telescope (Abd-ulhamid, 2008). The invention of prismatic glass was the basis of the development of

prismatic compass which was used in detecting bearings and locations in the study of stars (Abdul Hamid, 2008).

(vi) Muslim Philosopher of 12<sup>th</sup> Century Andalusia (Spain) Muhammad Ibn Rushd contributed to the development of Astronomy by writing a treatise on the motion of the sphere, *Kitaab –fi Harakat al-falak*. He also summarized *Almagest* and divided it into two parts: description of the spheres and movement of the spheres (Tricoll,2015).

(vii) Muslim Mathematicians refined Algebra from its beginning in Greece and Egypt, and developed trigonometry in pursuit of accurate ways to measure objects from distance (Mathews, 2004). However, even Algebra as an aspect of Mathematics was started by Muslim Scholars one of which was Jabir B.Hayyam.

(viii) Muslim Astronomers developed Astrolabe, an instrument that was once called “a mathematical jewel” (Mathews, 2004). The instrument was used in calculation of latitude and longitude as well as the calculations of the positions of the sun, moon and stars (Abdul-Hamid, 2008).

(ix) Other Muslim advances in Astronomy included the collection and correction of astronomical data, resolving significant problems in the Ptolemaic Model, the inventions of other numerous astronomical instruments, the beginning of Astrophysics and Celestial Mechanics etc.

### **The Place of Astronomy in the Islamic Universities**

The author of this paper is a Part-Time Lecturer in Al-qalam University, Katsina who give lectures for a General Studies Programme (GSP) course unit (GSP 2203) titled Science, Technology and Society. The first topic in the course is on astronomy which is outlined below:

1. Modern knowledge of the universe
  - (a) The Universe – definition, origin of the universe (the Big Bang Theory), known contents of the universe (planets, sun, stars, galaxy, comet, meteor, asteroid etc).
  - (b) Formation of stars and galaxies stars as common objects in the universe, the sun as a star, Milky Way Galaxy Andromeda Galaxy.
  - (c) Space Travel – Definition of space, and space travel, history of space travel requirements of space travel, space shuttles, the space environment, International Space Station (ISS), space tourism.
  - (d) Recent Development in Space Science and Technology – Discovery of earth-like planet, NASA’s new space craft, China’s first manned space craft, Nigeria’s National Space Research and Development Agency (NASRDA) launched in 2007, Iran’s Space

Programme, the Big Bang Experiment, India's Lunar and Mars Missions, New additions to the ISS.

The above sub-topics are taught using some resources/teaching aids to make the students understand the lectures. These include:

- (i) Internet sourced materials – showing diagram of the solar system, picture of ISS in earth's orbit, picture of space tourists etc.
- (ii) Charts – showing the solar system and related information.
- (iii) Atlases – showing diagrams of the solar system and the universe, showing section through the earth's atmosphere.
- (iv) Textbooks – Those used include Tillery (1999), Physical Science and Conte, Thompson and Moses (1991) Earth Science: An Integrated Perspective Second edition.
- (v) Magazines and Newspapers – BBC Focus on Africa Magazine showing pictures of meteorites that fell from the sky in Lesotho in 2003, New Nigerian Newspaper cutting of the meteorite that fell from the sky in Sokoto State in 2008.

The topic is taught in 3 – 4 lecture periods of 2 hours each. The students have shown more interest on the topic than other topics on Biology and Environmental Science. Some students even said that since they are also Islamic teachers and preachers, they need to learn Astronomy due to its relevance to the Islamic religion.

Realizing that the university is an Islamic one, an attempt was made to integrate Islamic teachings (which even predate the western knowledge of the universe) into the topic. Examples are provided below:

- (i) Creation of the universe explained by the Big Bang Theory – The Qur'an contains the following verse, regarding the origin of the universe:

Have those who disbelieve not known that the heavens and the earth were joined together as one untied piece, then We parted them?  
(Quran 21:30 that is Surat Anbiya'i, verse 20).

- (ii) Creation of galaxies – the following Qur'anic verse refers to the creation of galaxies:

Then He (i.e Allah) rose towards the heaven when it was smoke and said to the earth "come (into being) both of you willingly or unwillingly". They both said "we come willingly". (Qur'an 41:11 that is Surat Fusilat, verse 11).

- (iii) The light of the moon – The Qur'an mentioned the following verse more than 1,400 years ago (Naik, 2007).

Blessed is He (Allah) who has placed in the heaven big stars, and has placed therein a big lump (sun) and a moon giving light. (Qur'an 25:61 that is Surat Furqan, Verse 61).

This proved to be a welcomed development among the students as they can clearly see the relevance of the topic to their religion.

However, it could be observed that astronomy is taught just as a topic out of the six topics that comprise the GSP course unit. Besides, there are many topics in astronomy that were not covered as they are not part of the course outline. Even the topic and sub-topics were not covered or treated in details due to time constraint among others. There are also no instruments used in the teaching and no audiovisual demonstrations.

Based on the reasons advanced above it could thus be seen that astronomy has not been accorded its rightful place as a full-pledged programme of study in the university.

### **Astronomy as a discipline**

The modern development of Astronomy began with Galileo turning a telescope to the sky and the heliocentric model of the solar system. Astronomy and astrophysics have undergone a revolution in the past fifty years as telescopes ranging from the radio to the gamma ray have discovered the relict radiation from the Big Bang, planets around other stars and the time at which the first stars were just beginning to form (FASC, 2010).

Astronomy as a discipline is a distinctive integration of many of the sciences. The discipline is studied at undergraduate level in four years as other university degrees. In the first year, it is mainly introductory aspects to the discipline to provide an over-view of the scientific approach to our current understanding of the universe (FASC, 2010). In the second year, students were taught courses such as planetarium astronomy, general astronomy with laboratory etc. In the third year, the courses include the solar system, observational astronomy, history of astronomy, stars, galaxies and cosmology etc. (COSE, 2010). In the fourth and final year the courses include introduction to astrophysics, seminar in astronomy, special study in the field, laboratory or library etc. (COSE, 2010).

The admission requirements into Bachelor of Science Honours Degree in Astronomy for candidates in ordinary level should include credits in the science subjects particularly Physics, Mathematics and Geography, besides other requirements. These three subjects should also be the combination for Interim Joint Matriculation Board (IJMB) candidates who will start from 200 Level.

The buildings and installations needed for the programme are:

- (1) Instrument/Equipment room
- (2) Astronomical observatory
- (3) Campus planetarium
- (4) Audio-visual room
- (5) Meteorological station

The instruments/equipments and other materials needed for the programme are: (1) Binoculars (2) Telescopes (3) Spectroscope (4) Digital Cameras (5) Astronauts wears (6) Charts, pictures, diagrams of the solar system, stars, the universe etc.

The Islamic universities can work closely with related national agencies such as National Space Research and Development Agency (NASRDA) Nigerian Meteorological Agency and Federal Ministry of Science and Technology among others

### **Relevance of Studying Astronomy to the Islamic Universities of Nigeria**

The study of astronomy is relevant to the Islamic universities in the following ways:

1. An understanding of the discipline of astronomy is essential for the appreciation of the religion of Islam. This is because the Islamic Holy Book ‘The Qur’an’ shows many surahs beginning with astronomical references. Examples include Surat Jumma’a (Qur’an 62:1), Surat Shamsi Verse 1 – 5 (Quran 91:1-5) and Surat Tabagun Verse 1 (Quran 64:1) which begins with the statement that:

Whatever is in the heavens and on the earth doth declare the praise and glory of God: to him belongs dominion, and to Him belong praise: and he has power over all things.

2. The study of astronomy enables a Muslim to appreciate the oneness of Allah who created the heavens, sun, and moon as indicated in many surahs in the Quran. Example include Surat Jumma’a verse 1 whose opening states that:

Whatever is in the heavens and the earth doth declare the praise and glory of God – the Sovereign, The Holy One, the Exalted in Might, the Wise.

Astronomy, delves on the known contents of the universe. This goes to show that there are many objects in the universe that humans do not know which only God knows. Again Surat Tabagun verse 4 states that:

He knows what is in the heavens and on earth, and He knows what Ye conceal and what Ye reveal yea God knows well, the (secrets) of (all) hearts.

It is God that created the vast universe with the objects and distances between the planets, stars and galaxies (Ajhory, 2005).

3. The knowledge of Astronomy can be used to effectively serve Islam. There are calculations techniques applied in some areas of Astronomy that serve Islamic needs. Astronomy can serve the needs of Muslims for their daily prayers which were determined by the position of the sun. The position

of the moon determines the Islamic calendar (e.g times for fasting, dates of Eid and Hajj pilgrimage). The Qibla direction is also based on the position of the sun (Shaukat, 1999). Muslims have a special need for a time keeping system for their obligatory duties in order to fulfill the commandments of the creator, Allah (SWT). For the time keeping system He says in Surat Yunus, Verse 5

It is He who made the sun radiance and the moon a light and determines their stations that you might know the number of years and reckoning of time.

4. The study of Astronomy by Muslim students will keep the Islamic tradition alive as Muslim scholars have studied astronomy in the past and made important contributions to the development of the discipline. Therefore Muslim students as scholars of this generation are duty-bound to study the discipline. This will make them join the scientific race to space which has for long been dominated by the Americans and Europeans. This happens due to the fact that the study of astronomy among Muslims suffered a serious decline in the last few centuries (Haque-Copilah,2010).

5. Islam in general invites man to the study and understanding of the heavens.

Allah (SWT) stated in Surat Dukhan, Verse 38-39 that:

We created not, the heavens, the earth, and all between them, merely in (idle) sport. We created them not except for just ends. But most of them do not understand.

No other religion uses the heavens and the motion of the moon and sun for time keeping and calendars as Islam does. Allah created this tremendous universe that we live in and we are invited to reflect upon it, so that we may be able to practice our religion with conviction based on reason to the best of our abilities (Haque-Copilah, 2010).

6. The study of Astronomy by Muslims will assist in the move towards the Islamization of knowledge as a workable and effective model for conceptual transformation of education. This has been exemplified in the teaching of Astronomy as a topic by integrating Qur'anic verses in explaining the creation of the universe, the galaxies, the nature of the light of the moon, the presence of interstellar matter, the expanding universe etc. (Naik, 2007).

7. Lecturers and students of Astronomy can organize seminars, conferences, symposia and public enlightenment on the astronomical events that occurs in Nigeria which were not fully understood by the local people especially in the northern part. These events usually generate concern, disputes and disagreements among the local Muslim population. Examples

include solar and lunar eclipses, the appearance of the moon especially for the months of Ramadan and Shawwal, falling of meteorites from space in particular has caused fear, panic and anxiety among the people when they fell in Maigatari Local Government, Jigawa State (2004), Demsa Local Government, Adamawa State (2006), Sokoto South Local Government, Sokoto State (2008) and Zaki-Biam Local Government, Benue State (2010).

### **Prospects and Challenges of Introducing Astronomy as a Programme of Study in Islamic Universities**

The introduction of the discipline of Astronomy in Islamic universities has the following prospects:-

(i) The discipline will be welcomed among the Muslim community of Nigeria as it will assist in resolving the disputes associated with the sighting of the moon for the months of Ramadan and Shawwal. This issue of moon sighting has for a long time caused division and friction among the Muslim population. In astronomy, the telescope can be used as an aid to sight the moon for the two months as in the case in the Islamic Republic of Pakistan (Aljazeera, 2008).

(ii) There are many students in the Al-qalam University Katsina who have shown interest in studying Astronomy as a full-pledged programme based on the response from some of the students. Besides, there are also other Muslims who have the desire and ambition of studying Astronomy especially in the northern part of Nigeria, but such students have no option than to study the three disciplines that are close to Astronomy which are Geography, Physics and Mathematics (Abdul-Hamid, 2008).

(iii) The discipline of astronomy is the highest level of science which the advanced countries of the world have presently dominated. Thus if the discipline is introduced in the Islamic Universities it will enhance the status of the universities and show that Muslims in Nigeria are striving to achieve scientific advancement.

(iv) Graduates of Bachelor of Science Astronomy from the Islamic Universities can provide the manpower for the National Space Research and Development Agency (NASRDA) launched in April 2007 by former President Olusegun Obasanjo. Also a graduate in Astronomy has a wide grounding in modern physical sciences which is important for a wide range of roles in society (FASC, 2010).

The challenges that have to be overcome to introduce astronomy as a programme of study are:

(i) Funding of Islamic Universities is a major challenge that has to be overcome to introduce new programmes of study such as Astronomy. In the year 2009, the Al-qalam University was heading to closure till it was salvaged by the singular donation of N1 billion by the present Chancellor of

the university (Alhaji Aminu Alhassan Dantata). The donation is highly appreciated by the university and people of Katsina especially in view of the revelation that some people did not fulfill pledges made during the launching of the institution in 2002 (SELA, 2007). There was also less funding or assistance programme from the past and present governments of Katsina State.

(ii) The instruments and equipments used in Astronomy which were listed earlier, are very expensive. The lenses used in astronomical observations (in telescopes, binoculars etc) are vitreous silica glass which are the most expensive among the glass family. The digital cameras used for astronophotography are also very expensive. It is important to state that these instruments have to be imported with hard currency from countries such as USA, Canada or England.

(iii) So far the discipline of Astronomy is not taught as a full-pledged programme in the universities of Nigeria even among the conventional ones. Though the University of Nigeria Nsukka has recently introduced Physics and Astronomy. This is due largely to its highly scientific and sophisticated nature in terms of instruments, equipments and buildings. It has therefore become a challenge for the Islamic Universities to go ahead by introducing it as a programme of study.

### **Recommendations**

The Federal Ministry of Science and Technology, NASRDA and other bodies related to the discipline of Astronomy should find means of encouraging people in the country to take off astronomy as a hobby. These people can serve as amateur Astronomers who can make useful contributions to the discipline in Nigeria.

The contributions of Muslim scholars to the discipline of astronomy should be incorporated into the course outline as one of the course units. This will allow Muslim students to learn and appreciate their contributions to the discipline.

Curriculum designers have for a long time been neglecting an important area of knowledge like Astronomy that is useful to the citizens and as well as have the right to acquire such knowledge. An all encompassing syllabus should therefore be designed for Bachelor of Science Astronomy preparatory to its introduction.

The Nigerian Astronomical Society (NAS) should encourage people at amateur and professional levels to create awareness about the discipline and its development as a profession in Nigeria.

The Katsina State Government should as a matter of urgency plan a programme towards funding and assisting Al-qalam University. It is indeed surprising and annoying that past governments in Katsina State have been

assisting conventional universities (such as Ahmadu Bello University Zaria and Bayero University, Kano) yet much assistance was extended to the Al-qalam University.

The Muslim community of Katsina State should for the sake of Allah (SWT) come forward and assist the university in the building of student's hostels, auditorium, lecture theatres and other building and installations required for the mounting of new academic programmes of study such as Astronomy.

### **Conclusion**

Astronomy is a fast-moving science, new discoveries are being made with bewildering rapidity, and new theories are advanced to try to explain them (Moore, 2003). In many countries of the world, Astronomy is well developed and established as a discipline. Nigeria in general and the Muslim community in particular must not lag behind in this important area of knowledge since the religion of Islam invites man to the study of astronomy. Astronomy is part and parcel of Islam as shown in the Holy Quran. We should thus move forward and introduce Astronomy as a programme of study in the Islamic universities. However, before this is achieved, the government and the Muslim community must contribute generously in providing the funds needed to expand the programmes offered in the universities.

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