I.Telelis

**«The great climatic risks of the past: The drought described by Byzantine sources (4th-6th cent. A.D.)»**

*Proceedings of SEP Pollution Meeting in Padova, Italy*, *29. 3.-2. 4. 1992*, pp.289-301.

SEP
Pollution

CITTA' E AMBIENTE

29 Marzo - 2 Aprile 1992

14° Salone Internazionale dei Servizi Pubblici, Tecnologie per i Servizi Urbani
e per la lotta contro gli Inquinamenti

# Giornate di Studio Europee per l'Ambiente

# Inquinamento atmosferico

ATTI

EDITRICE

PADOVAFIERE

# THE GREAT CLIMATIC RISKS OF THE PAST: THE DROUGHT DESCRIBED BY BYZANTINE SOURCES (4th-6th CENTURIES A.D.)

**TELELIS IOANNIS**
M.A., Department of Byzantine History, University of Ioannina, Greece

## Introduction

In the beginning of this century the view that the Earth is becoming steadily and even alarmingly drier was advocated by the Russian geographer Peter Kropotkin (1904). The opinion of that scholar constituted the transformed continuation of suggestions made by Francis Bacon (17th century) that meteorological events tend to recur at approximately 35-years intervals, and stimulated the scientific interest of the American geographer and geologist Ellsworth Huntington. Huntington visited and surveyed Central Asia for several years and became the main proponent of "climatic determinism" for the first half of this century (Manley 1955).
Huntington's determinism formerly adopted the theory that the climate is undergoing a steady progress towards drought, though there may be fluctuations in the advance -as promulgated by Peter Kropotkin-, and in a second stage, was modified regarding the climatic change as pulsatory, which is an alternation of wet and dry periods. In any of its two forms, Huntington's determinism attempted to show the influences of environmental conditions upon history and to relate major historic events to long-term climatic changes. His main consideration was that either progressive or pulsatory desiccation, causing an alternation of wet and dry periods, has been sufficient to have very important political and economic results upon nations. For instance the fall of the Roman Empire was attributed to the scarcity of rainfall in Central Asia, which turned whole tribes of agriculturists into nomads due to the repeated failure of their crops, and finally drove the Asiatic hordes into Europe

(Gregory 1914; Huntington 1917; and generally on the speculations concerning the case of Rome: Demandt 1984).
In the core of these considerations, -not only as highly extremely postulated as in Huntington's works, but sometimes more mildly forwarded by the antecessors of Huntington's determinism (about that school of thought see Ingram & Farmer & Wigley 1981: 18)- is to be found the signification of "drought".
In this paper an attempt is made to approach the potential contribution of the early climatological evidence from the Byzantine and Oriental documentary sources (4th through 6th centuries A.D.) to the debate over climatic changes in the eastern Mediterranean area during that period. A net of methodological observations on the difficulties coherent in the various types of the narrative sources and the trustworthiness of the climatological information deriving from them is outlined, as it arises from the *corpus* of the documentary information on drought.

## Type and genres — assessment of the sources

The body of the documentary evidence which concerns lack of rain, drought or phenomena related to drought (i.e drying of wells, springs or rivers, etc.) is derived from the corpus of the Byzantine narrative sources and belongs actually to four different literary genres (Hunger 1978; Krumbacher 1958):
1) The actual historical writers such as Ammianus Marcellinus (4th century) and Procopius (6th).
2) The chronographers who write universal chronicles starting from the Creation of the World up to their days, such as Ioannes Malalas (6th), Marcellinus comes (6th), Theophanes (9th), Georgius Monachus (9th), Leontios Machairas (15th). Oriental chronographies written in Syriac or Arabic and recently published in modern European languages were also excerpted: Michael Syrus (12th), Pseudo-Zacharias of Mitylene (6th), Agapius Menbidj (10th), Elias from Nisibis (11th), Chronicle of Seert (11th). The evidence from these authors were calibrated to those deriving from the Byzantine sources.
3) The church historians such as Philostorgius (5th), Socrates (5th), Sozomenos (5th), Euagrius (6th) or Nicephorus Callistus Xanthopulos (14th).
4) Saints' Lives (*Vitae Sanctorum*) of the Byzantine Church: Life of Spyridon bishop of Thrimithon (4th), Macrina (4th), Porhyrios (5th), Euthymios (5th), Sabas (6th), Theodosios (6th), Theodoros Syceon (6th), Eutychios patriarch of Constantinople (6th), Symeon Stylite junior (6th), and the compilations of Saints' Lives: Theodoretos Religious History (4th-5th), John Moschos Meadow of Spirit (6th).
Although the main aim of this paper is to present critically the documentation of these sources on drought and analyse the potentiality of the derived data for historico-climatological interpretations, it appears necessary to comment briefly on the nature and some special characteristics of the different kinds of the sources. This may prove to be helpful for the assession of the trustworthiness of this sort of evidence (Chrysos 1990).
The literary tradition of writing historical works, which lies behind and under the Byzantine literature, influenced the focus of interest, the themes and the style of writing of the Byzantine authors:
The historians imitate the model of the classical Greek writers and they are interested in demonstrating the initiatives or the deeds of their heroes who are usually their benefactors. For this reason they are less interested in describing meteorological phenomena, which according to their sophisticated attitude, are irrelevant to the political or military events they want to describe. But, whenever they describe droughts, severe winters etc., their accounts are of great trustworthiness because their aim is usually to clarify the circumstances under which the described political or military events took place. In many cases the authors themselves have been eyewitnesses of the events they describe or, at least, they based their information on reliable contemporary accounts.
More plenty are the accounts offered by the chronographers. Their aim is to demonstrate the steady and powerful interference of God in the development of human history under a concrete eschatological scope. Because of this, they are more interested in recording natural phenomena and they present them as God's acts of educational punishment upon His people. The Byzantine and Oriental chronographers are usually trustworthy. Their only tendency is to exaggerate and apply eschatological interpretations on facts and events which could stimulate the colorful and superstitious imagination of their vast public. In comparison with the medieval annalists and chronographers of western Europe (Bell & Ogilvie 1978: 333; Alexandre 1987; Ingram & Underhill & Farmer 1981: 184-185) they are more trustworthy and do provide some reliable information; of course, only if it is analyzed carefully. The information offered by Byzantine and some Oriental chronographers is of particular value because i) these authors based their information for centuries prior to their period of life upon contemporary sources which, sometimes, may have been lost for ever, ii) quite often they give a rather accurate chronological frame on annual basis, although they unfortunately fail to provide us with more precise dates.
The ecclesiastical historians stand between the political historians of the classical type and the chronographers of the medieval type in their aims and intentions in literacy and in exactness. Their accounts on natural phenomena may usually be some times inclined to exaggeration or

may hide strong preconceptions against pagan or heretical emperors. Thus, meteorological information deriving from ecclesiastical histories should be calibrated and compared to accounts of other sources when there appear preconceptions or superstitious tendencies in the texts.
Furthermore, there exists a vast amount of Saints' Lives (*Vitae Sanctorum*) of the Byzantine Church. These writings have, as a matter of fact, minor importance as historical sources. Nevertheless, they are much more trustworthy when they mention natural phenomena that occurred during their heroes' lives. In most of the cases it is not difficult for the modern reader to discriminate supernatural from fact and discard those parts of the accounts that aim to exalt or praise the sanctity, the benevolence or the moral dignity of the Saint. The main difficulty with these sources is that they usually offer no chronological reference to the described events. This diminishes, of course, their value, but interesting conclusions may be drawn if their information is evaluated in comparison with other contemporary and more precise evidence. This conclusion is thus not supportive to the decision that Saints' Lives should be "*rejected a priori as their composers were necessarily subject to too many distorting pressures*" (Farmer & Wigley 1983: 180). The potential contribution of this kind of documentary sources in historical climatology should be reconsidered. Records derived from such texts may in many cases help the historian of climate to define more accurately general and indefinite descriptions of chronicles, provided that these records are approached carefully and critically. It is not a coincidence that a good deal of source information presented and analyzed in this paper derives from Saints' Lifes, this still neglected category of documentary sources for Historical Climatology.

## Methodology

Drought information deriving from the Byzantine and Oriental documentary sources, represents partially the interest of the Greek and Oriental medieval writers in weather and climate. As a natural event, either because it stimulated the threat of food supplies' dearth or because it was regarded having religion and supernatural significance, drought was out of the ordinary, and thus memorable and worth mentioning in the works of medieval writers. But even in the chronicles which contain relatively abundant meteorological details, the statements on drought are very fragmentary and isolated, they are in most of cases geographically inaccurate, and contain very sparse quantitative information.
These negative elements of the documentary evidence on drought and generally on climate, unfortunately prevent the researcher from the



application of quantitative and statistical methods. The construction of time series is unfeasible because the data are not quantitative, homogeneous and continuous (Le Roy Ladurie 1971: 24 & 275).
What remains is a more or less sophisticated qualitative analysis of the given information and the attempt to approach the data with specific methodological criteria developed by modern historico-climatological research (Ingram & Underhill & Farmer 1981: 204-205).

## Qualitative remarks on the drought records

Appendix I presents in table-form the three basic features of the records which make them interesting for climatic interpretation: chronological setting, geographical extent of the drought and details on each episode itself. Though a sophisticated analysis of the references on drought should include the presentation of the full text of each record in its original language, we can make positively some remarks on the nature of the records:
i) The systematic excerption of the above mentioned genres of the Byzantine and Oriental sources for the 4th to 6th centuries A.D. yielded 38 written records of drought episodes. These records derive not only from sources redacted during the 4th to 6th centuries A.D., but also from later ones up to 15th century. The distribution of the material between the 4th and 15th centuries and the amount of records from the four different genres of documentary sources are shown in Figure 1. This Figure shows that the greatest amount of records comes from all kinds of the 6th century sources. The records of the later centuries belong mainly to chronographies, the commonest feature of which was the compilation of previous works.
ii) While drought represents an extreme and/or deviative situation from "normal" conditions of a given geographical area, the information on drought episodes that appears in the sources is in the form of complaint.
iii) These complaints in most of the cases are very general in expression. Under the term "drought" the Byzantine and Oriental authors may comprise as much the meteorological significance of this climatic risk -namely that period when the amount of precipitation is less than some designated percentage of the long-term mean- as its agricultural significance, namely the timing (apparently the delay) of the rainfall which is crucial to crop development (for this discrimination see: Glantz & Katz 1977). Though there are terms in use for that first signification of "drought" ("abrochia" or "anombria" in Medieval Greek= lack of rain), for the second one there are not specific terms.

iv) So, in cases of documentary evidence (e.g. in the brief annalistic entries of the chronicles) where no months of the drought or other subsequent events resulting from a drought are given (e.g. delay of harvest, failure of crops etc.), the climatological interpretation of the data becomes very risky.
v) Famine -either in form of short-term shortage of available foodstuffs, or (more seldom) in form of critical and catastrophic long-term food crisis leading to starvation (Garnsey 1988: 6)- is recorded in many cases as the most considerable consequence of drought. In our documentary evidence on drought, famine is mentioned by the Byzantine and Oriental authors in 10 amid 28 cases. The interpretation of these cases and the possible climatic deductions which can be reached from a systematic study of that sort of evidence, could be attempted in other papers. At present we can observe that evidence on famine episodes during the period 4th through 6th centuries A.D. is very frequent in the documentary sources. This fact may permit speculations concerning the correlation between complaints about drought (some times not explicitly mentioned in the documentary sources, but perhaps testified by natural evidence e.g. pollen or tree-ring data) and complaints about famine.
vi) The geographical framework of the records has much to do with the area of origin and action ("Geschichtsraum") of the individual authors. But, because of other social and historical reasons which differentiated the cultural milieu in which the Byzantine literature flourished from the corresponding milieu of other medieval literatures, the geographical range of the records can be recognized as extending beyond the immediate geographical region of each author. The Byzantine chronographies are good examples for these observations: The œcumenical idea of the Byzantine state -to give only one example- has been traced not only in the topics upon which the chroniclers had focused their interest, but is also evident from the concern of them to collect and compile information from all over the state. Of course, there were also sources of very local character such as the Saints' Lives (Hunger 1978; Beck 1972).

## Chronological framework and geographical distribution of the sources used

As far as the concrete drought incidents described in the sources during the three centuries under discussion are concerned, the frequencies of manifestation are shown in Table 1.

The number of drought events should not be perceived in a strict sense, because they do not represent isolated years of drought occurrence.
The geographical mosaic of the records in use is shown in Table 2 and the geographical distribution of the evidence per century is traced in Figure 2. A few observations are worthy:
i) Most of the information concerning drought events refers chiefly to Palestine, Syria and Asia Minor.
ii) The other two areas mentioned (i.e Cyprus and Constantinople) can obviously be incorporated to Syria and Asia Minor respectively, so that we can speak generally about the eastern part of the Mediterranean and the Middle East.
iii) Peak of the information frequency for these areas seems to be the 5th century.
Although these three observations should not be perceived -because of the ambiguity of the sources- in a strictly deterministic way, they can be viewed as indicative of climatic fluctuations, the nature of which has already been studied by many scientists.

## Discussion & Conclusions

The debate over Huntington's climatic determinism, in the basis of which is to be found the climatic change theory, stimulated the survey and exploitation of all available kinds of evidence (botanical, geological and geomorphological, historical and documentary, archaeological etc.). The accumulation of the relevant evidence, from Huntington's time up today, aimed to the support or the rejection of his considerations over climatic change. The two-fold question whether the climate has changed within historical time in such a scale to influence civilization dramatically, or it undergone -in the past like in the present- merely minor fluctuations, seems to have been answered by the modern paleoclimatological research: Scholars do not merit Huntington's speculations.
The problem of "drought" during 300-600 A.D. in Eastern Mediterranean was inevitably approached under those two different points of view: that of climatic change/ deterioration and that of climatic fluctuations. The scepticism against Huntington's methods and conclusions as far as they concern long-term climatic trends, does not discount the rejection of the data themselves and of what they may indicate.
Evidence of all sorts do attest a succession of droughts in Central Asia, and Middle East from A.D. 350/400. Butzer's (1957) scepticism on the remarkable coincidence of nomadic effervescence in Preislamic Arabia with dry spells, his decision that the influence of small scale climatic

fluctuations is at best a very subordinate one even in cases of human societies dependent on the natural environment and Ladurie's (1971: 17) criticism on Brooks' (1926: 321) diagrams of rainfall based on Mongol invasions in Central Asia, are good examples of the suspicion that leads the thought of many scholars in front of simplistic argumentations implied by "climatic determinists". If we evaluate critically and perhaps circumspectly the archaeological evidence for these centuries [depopulation of cities e.g Ephesus, Antioch, Palmyra; abandonment of irrigation works in Arabia; migration of Mongols and Hunns from Central Asia towards West i.e "Volkerwanderungen" (Lamb 1982: 151-160)] because it is difficult to discriminate cause from result and there are many possible anthropogenic e.g social, economic or political explanations for such phenomena, we can assume from other sorts of proxy data that long periods of drought prevailed over eastern Mediterranean and Middle East during the beginning of the Byzantine Era. Fossil data, evidence of rising Mediterranean level and retreat of Caspian and dead Sea levels (Lamb 1982; Rubin 1989) are interpreted as indicators of a warming phase from A.D. 300 through about 600 with minor fluctuations, i.e bad years and good years for agriculture which depends on the amount of the rainfall.

The contribution of the Byzantine, and Oriental sources to the research of the dry periods A.D. 300-600, as it results from the above analysis, is not expected to be substantial but rather secondary and merely supportive to the efforts of other methods and disciplines. Source evidence has obvious weaknesses. Although they should assist in the identification of the most extreme years.

The first half of the 4th century appears from the source evidence to have been a period of warming and drying for the eastern provinces of the Byzantine Empire (Cyprus, Asia Minor, and Syria). The 36-years drought described by a later 14th century chronicle has been corroborated by records from a Saints' Life contemporary to the event. Palestine seems to have suffered very much from drought during the 6th century. The account about a 5-years drought (516-521 A.D.) recorded by a Saint's Life may be considered as corroborative to later accounts on a very long drying-up of the well Shiluho in Jerusalem (15-years ! 523-538 A.D.).

The literary evidence of weather and climate does exist "buried" in the Byzantine and Oriental texts. This paper perhaps reveals the importance of Greek Saints' Lives for Historical Climatology. The survey, collection and validation of this material is a laborious task. We hope that the aforementioned comments on drought evidence outlined the several difficulties that must be overcome by the analyst in order to draw certain conclusions about weather change and fluctuations.

## References


Alexandre P.: 1987, *Le climat en Europe au Moyen Age. Contribution á l'.histoire des variations climatiques de 1000 á 1425, d' apres les sources narratives de l'Europe occidentale*, École des Hautes Études en Sciences Sociales, Paris.

Beck H.-G.: 1972, "Zur byzantinischen "Mönchschronik"", in "Ideen und Realitäten in Byzanz", *Variorum Reprints*, essay XVI.

Bell W.T. & Ogilvie A. E. J.: 1978, "Weather compilations as a source of data for the reconstruction of European climate during the medieval period", *Climatic Change* vol. 1, pp. 331-348.

Brooks C. E. P.: 1926, *Climate through the Ages*, London.

Butzer K. W.: 1958, "Der Umweltfaktor in der großen arabischen Expansion", *Saeculum*, vol. 8, pp. 359-371.

Chrysos E.: 1990, "The Byzantine Sources as Documentary Evidence for the Reconstruction of Historical Climate", paper delivered in the E.S.F. Workshop: *"European Climate Reconstructed from Historical Documents: Methods and Results"* in Mainz, Germany (1-3 March 1990).

Demandt A.: 1984, *Der Fall Roms. Die Auflösung der römischen Reiches im Urteil der Nachwelt*, München.

Farmer G. & Wigley T. M. L. (eds.): 1983, *The Reconstruction of European Climate on Decadal and Shorter Time Scales*, Final Report and Progress Report for the period March-August 1982 to the Commission of the European Communities Contract No. CL-029-81-UK(H), Climatic Research Unit School of Environmental Sciences, Univ. East Anglia, Norwich.

Garnsey P.: 1988, *Famine and Food Supply in the Graeco-Roman World. Responses to Risk and Crisis*, Cambridge Univ.Press.

Glantz M. H. & Katz R. W.: 1977, "When is a drought a drought?", *Nature*, vol.267, pp.192-193.

Gregory J.W.: 1914, "Is the Earth Drying Up?", *Geogr. Journ.*, vol. 43, pp. 148-172 & 293-313.

Hennig R.: 1904, "Katalog bemerkenswerter Witterungsereignisse von aeltesten Zeiten bis zum Jahre 1800", *Abhandlungen des Kœniglich Preussischen Meteorologischen Instituts* (Berlin), vol. 4, ii, pp. 1-93.

Hunger H.: 1978, *Die hochsprachliche profane Literatur der Byzantiner*, 2 vols. (Handbuch der Altertumwissenschaften XII,5,1/2=Byz. Handbuch 5,1/2, München.

Huntington E.: 1917, "Climatic Change and Agricultural Exhaustion as Elements in the Fall of Rome" *Quart.Journ.of Economics*, vol. 31, pp. 173-208 [reprinted in Chambers M. (ed.), *The Fall of Rome. Can it be Explained?*, New York 1963, pp. 55-61.

Ingram M.J. & Underhill D. J. & Farmer G.: 1981, "The use of documentary sources for the study of past climates", in Wigley T. M.

L., Ingram M. J., Farmer G. (eds.), *Climate and History*, Cambridge University Press, Cambridge.
Ingram M. J. & Farmer G. & Wigley T. M. L.: 1981, "Past climates and their impact on man: a review",. in: Wigley T. M. L., Ingram M. J., Farmer G. (eds.), *Climate and History*, Cambridge University Press, Cambridge. pp. 3-50.
Kropotkin P.: 1904, "The Desiccation of Eur-Asia", *Geogr. Journ.*, vol. 23, pp. 129-134.
Krumbacher K.: 1958, *Geschichte der Byzantinischen Litteratur von Justinian bis zum Ende des Oströmischen Reiches (527-1453)*, vol.1, (2nd edition of the original publication in München 1897), Burt & Franklin, New York.
Lamb H. H.: 1982, *Climate History and the Modern World*, Methuen, London.
Le Roy Ladurie E.: 1971, *Times of Feast, Times of Famine. A History of Climate Since the Year 1000*, New York.
Manley G.: 1955, " The Revival of Climatic Determinism", *Geogr. Rev.* vol. 48, pp. 98-105.
Rubin R.: 1989, "The debate over climatic changes in the Negev, fourth-seventh centuries C.E.", *Palestine Exploration Quarterly*, vol. 121, pp.71-78.

## Tables

| centuries | references in the sources | drought events | |
|---|---|---|---|
| 4th (300-399 A.D) | 10 | 8 | 4* |
| 5th (400-499 A.D) | 8 | 6 | 2* |
| 6th (500-599 A.D) | 19 | 13 | 4* |

Table 1.: Drought records and drought incidents per century. Numbers with asterisc (*) represent citations in the compilation of R. Hennig (1904) as excerpted by Butzer (1957).



| area | centuries | | |
|---|---|---|---|
| | 4 th | 5th | 6th |
| Cyprus | 1 | 0 | 0 |
| Asia Minor | 2 | 2 | 2 |
| Syria | 2 | 2 | 3 |
| Palestine | 1 | 4 | 3 |
| Mesopotamia | 1 | 0 | 2 |
| Constantinople | 0 | 1 | 2 |
| general or indefinite references | 1 | 0 | 1 |

Table 2.: Geographical distribution of the records per century

## Figures

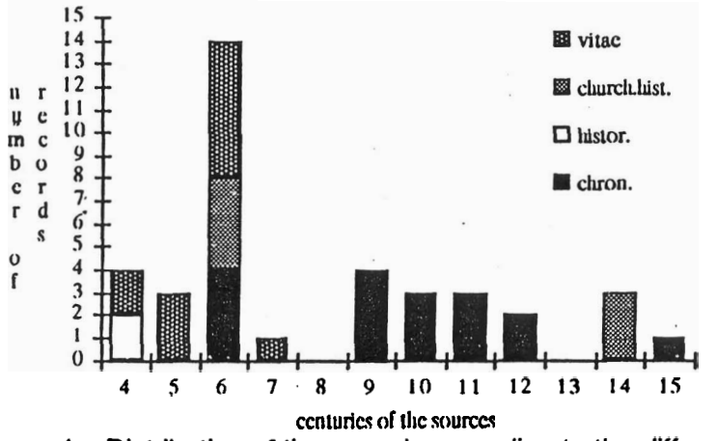


Figure 1.: Distribution of the records according to the different kinds of the sources and the various centuries of sources' redaction

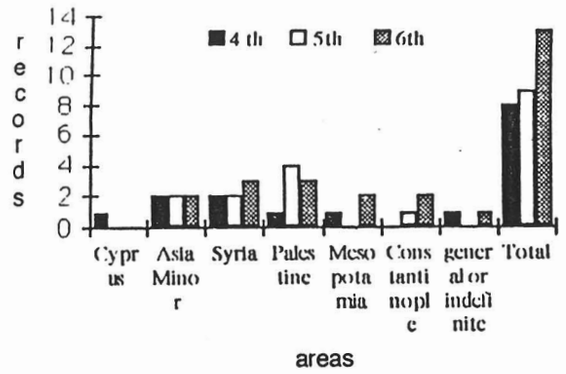


Figure 2.: Geographical distribution of the records per century (chart of Table's 2 data)

## Appendix I

| A.D. | location | short description of drought | source-references |
|---|---|---|---|
| 304 | Byzantine Empire (loc.indef.) | droughts, thunderbolts, famines, pestilence, thunderbolts <author's preconception> | *Theophan.* p.13,15 |
| 305-341 | Eastern provinces of Byzantine Empire, Cyprus | lack of rain, drought, failure of harvest, famine, migration of people | *V. Spyridon Trimithos* c.1<br>*Leont.Mach.* 3, p.2,21 |
| 360 | Asia Minor: Lycaonia | drought, pestilence, overthrow of bishop | *Philostorg.*HE. V,2 |
| 361 Nov-Dec | Syria: Antioch | drought, drying up of springs & brooks | *Ammian.* XXII,13,4 |
| 361-363 indef. | East provinces of Roman Empire (loc.indef.) | drought, famine, pestilence <authors' preconception> | *Sozom.HE.* VI,2,13-16<br>*Niceph.Callist.* X,35 |
| 368/369 Nov-Jan | Asia Minor: Cappadocia | lack of rain, drought, famine, saint's benevolence | *Vita Macrinae* c.12 & c.26 |
| 377-378 indef. | Asia Minor ? (loc.indef.) | lack of rain, drought, perish of animals, death of people | *Georg.Monach.* p.561,15 |
| 395-396 Oct-Jan 2 cont. | Palestine: Gaza | lack of rain, famine, superstition: citizens believe that foreigner saint was portent of drought, prayers & litany for rain by saint, miracle: rainfalls began | *Vita Porphyrii* c.19 |
| 397-404 indef. | Syria,Mesopotamia :village Daskart | lack of rain, drought, rogations to God | *Chron.Seert* II,LXVIII,p.210 |
| 418 Jul 10 | Constantinople | drought, perish of animals, death of people | *Philostorg.HE.* XII,8<br>*Niceph.Callist.* XIII,36 |



| | | | |
|---|---|---|---|
| 429-440 indef. | Asia Minor,Syria: Cilicia, Tel-Neshin | lack of rain, drought, famine, pestilence, miracle : saint predicts the calamities <eyewitness> | *Theodoret.Hist.Relig* XXVI |
| 431-451 indef. | Palestine: Jerusalem | lack of rain, drought, miracle : miraculous blow of strong South wind, rainfall heavy ends the drought | *Vita Euthymii* c.25,p.38-39 |
| 453-457 indef. cont. for 1 year | Asia Minor, Syria, Palestine: Cappadocia, Cilicia, Phrygia, Galatia | drought, famine, pestilence | *Evagr.* II,6<br>*Niceph.Callist.*XV,10 |
| 483 before May | Palestine | lack of rain, drought<br>miracle: miraculous rainfall | *Vita Euthymii* c.44,p.65-66 |
| 494-518 ?indef. | Palestine: Sapsas (= N. of Dead Sea) | lack of rain, drought | *Joh.Mosch.Prat.Spirit.* c.1 |
| 516-521 cont.for 5 years | Palestine: Jerusalem | lack of rain, drought, famine, pestilence [In the same time locusts (bruchus)] | *Vita Sabas* c.58,p.159 |
| 518-526 ?indef. | Palestine | lack of rain,<br>miracle: benevolence of saint, rainfall miraculous | *V. Theodosii* p.85,16 |
| 523-538 cont.for 15 years! | Palestine: Jerusalem, Shiluho (well in S. quarters of Jerusalem) | drought, lack of water in well | *Mich.Syr.* IX,16 (2,179)<br>*Pseudo-Zach.Mityl. Chron.* VIII,4 (p.204) |
| 526 indef. | Syria? <location not mentioned> | lack of rain, drought, small harvests | *Agapius Menbidj* p.165<br>*Chron.Seert* II,XX,p.48 |
| 527-528 indef. | Asia Minor: Ancara, Trapezas | lack of rain<br>miracle: saint prayers for rain, miraculous rain affirms the sanctity of young saint | *Vita Theodor.Sykeotae* c.14 |
| 530 Sept. | Constantinople? <location not mentioned> | drought<br><the drought is related to the apparition of a comet> | *Malal.* p.454,6 |
| 536 indef. cont. | Persia,Euphratesia | drought, dessication of pastures | *Marcell.com.* p.105,9 |
| 551 Nov. | Byzantine Empire | drought, hot weather, second blossom of plants, superstition | *Proc.Bell.Goth.* VIII,15,21-25 |
| 552-560 cont. 8 years | Asia Minor: Amida(Diyarbakir) | (lack of rain), famine, death of people, social riot | *Elias Nisib.* p.59,12<br>*Mich.Syr.* IX,32 (2,267)<br>*Theophan.* p.230,17-24<br>*Vita Eutychii patr.CP* c.17 |
| 563 Aug. | Constantinople | drought, lack of water, fights at the cisterns | *Malal.* p.492,11<br>*Theophan.* p.239,23 |
| 567-568 cont. | Syria ? | lack of rain | *Agapius Menbidj* p.175 |
| 578-592 indef. | Syria: Antioch | lack of rain, drought, fights at the cisterns, miracle: saint made miraculous rain for the repentance of infidels | *Vita Symeon Styl. iunioris* c.217 |
| 596 | Mesopotamia ? | heatwaves, drought, perish of plants | *Agapius Menbidj* p.187 |