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LILONG CHAJING (IMPHAL-WEST), MANIPUR

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ACADEMIC YEAR
2019-2020

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3.3 RESEARCH PUBLICATION AND AWARD

3.3.1.: NUMBER OF RESEARCH PAPERS PUBLISHED PER TEACHER IN THE JOURNALS NOTIFIED ON UGC CARE LIST DURING THE LAST FIVE YEARS

Sl.No	Title of paper	Name of the author/s	Department of the teacher	Name of journal	Year of publication	ISSN number
1	Soil Respiration in subtropical mixed disturbed forest and undistubed mixed oak forest of Manipur, North- Esatern India.	Phurailaypam Apsara Devi	Botany	International Journal of Science and Research (IJSR), VOL.9, Issue Nov.2020	2019	ISSN: 2319-7064
2	A SURVEY ON IMAGE AND VIDEO UPSCALING AND MEASURING MATICES	Oinam James	Computer Science	Journal of Critical Reviews	2020	ISSN- 2394-5125 Vol 7, Issue 13, 2020

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International Journal of Science and Research (IJSR)
ISSN: 2319-7064
SJIF (2019): 7.583

Soil Respiration in Subtropical Disturbed Mixed Pine Forest and Undisturbed Mixed Oak Forest of Manipur, North-Eastern India

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Abstract: *Seasonal changes in soil respiration and its relationship with abiotic variables was studied in subtropical disturbed mixed pine forest and undisturbed mixed oak forest of [illegible] Senapati District, Manipur located at a distance of [illegible] from the Imphal city. Forest site I at [illegible] falls at 24.99°N latitude and 93.90°E longitude at an altitude of [illegible] and forest site II falls at [illegible] at an altitude of 933m from the mean sea level [illegible] using alkali absorption method. The rate of soil respiration was highest during rainy season [illegible] in disturbed pine forest site I and [illegible] in undisturbed mixed oak forest site II and minimum during winter season [illegible] in disturbed pine forest and [illegible] in undisturbed mixed oak forest. Abiotic variables (i.e. soil temperature, soil moisture, soil pH and soil organic carbon) also exhibited a positive significant relationship with the rate of soil respiration.*

Keywords: Soil respiration, disturbed mixed pine forest [illegible] undisturbed mixed oak forest [illegible] abiotic variables

1. Introduction

Soil respiration is defined as the total CO_2 production in intact soils resulting from the respiration of soil microorganisms, roots and mycorrhizae. It is a useful parameter for studying soil biological activity, carbon cycling and energy flow in an ecosystem and is also considered as an important index of the decomposition system (Singh and Gupta, 1977). Hashimoto et al (2004) studied soil respiration in tropical forest of northern Thailand and reported that soil respiration was relatively high during the rainy season and low during dry season, although inter-annual fluctuation were large. Laudram et al, 2002; Bijayalaxmi and Yadava 2009) studied soil respiration and its relationship with abiotic factor in different forest but limited information is available on soil respiration in subtropical disturbed pine and undisturbed mixed oak forests. Therefore, the present study was carried out to investigate the seasonal change of soil respiration and its relationship to abiotic variables in subtropical disturbed mixed pine and undisturbed mixed oak forests of Manipur.

2. Study Area

The forest site is located at Mothang that lies at 24.99°N and 93.90°E at an altitude of 970 m from the mean sea level and the forest site II is located at Saparmeina that lies at 25.04°N and 93.93°N at an altitude of 933m from the mean sea level. The average annual rainfall of the study sites is 1131.8 mm, the mean monthly maximum ranges from 4.9°C (December) to 28.8°C (July) during the study period as shown in figure 1.

The disturbed mixed pine forest site I is dominated by *Pinus Khesiya* Rowla, *Bauhinia variegata*, *Emblica officinalis*, [illegible] and other shrubs and herbs species. The disturbance occurs due to collecting of timber, grazing and other biotic disturbances. The undisturbed mixed oak forest site II is dominated by *Quercus serrata*, *Schima wallichii*, [illegible] and other herbs and shrubs.

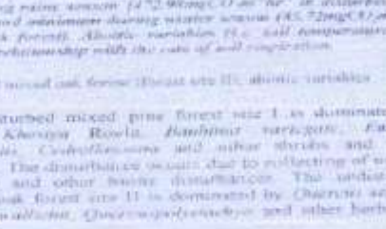

Figure 1: Clinical data of the study period

3. Materials and methods

The soil samples were collected from the upper layer of 0-10 cm in depth at monthly interval and brought to the laboratory for further analysis. The soil samples were sieved (< 2mm) to remove stones, roots etc. Soil texture were analysed by pipette method. A soil thermometer was used to determine soil temperature. The soil moisture was measured by gravimetric method (oven dry at 105°C till constant weight). Soil pH was determined by Walkley Black method, total nitrogen by Kjeldahl method, Phosphorous by molybdenum blue method (Anderson and Ingram, 1993). Potassium was estimated by Flame photometer (Jackson, 1958).

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A SURVEY ON IMAGE AND VIDEO UPSCALING AND MEASURING MATICES

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Abstract

Image upscaling takes a key role in the field of image processing to enhance the image and video resolution for Super Resolution (SR) in the devices such as computer system as well as in smart phone. Nowadays many remarkable machine learning based techniques of image SR are being developed. In this paper a survey on current advanced image SR techniques which use the machine learning approaches with a systematic way is presented. It is also presented other topics regarding metrics along with publicly available benchmark datasets for evaluation of the performance. Here we give the conclusion for this survey after evaluation of the results by highlighting the merits and demerits of the techniques along with potential directions.

Keywords: Image Super-resolution, Image Upscaling, Machine Learning, Convolutional Neural Networks (CNN).

DOI: http://dx.doi.org/10.31838/jcr.07.13.186

INTRODUCTION

Digital photography takes a huge part of our everyday lives and we desperately need better picture quality, higher resolution and more functionality. Images having many number of pixels as much as possible within a given size of the image is called High resolution (HR) image.

Therefore, a high quality photo provides important critical information usually,for applications in various security and civil application like surveillance monitors, medical imaging, target identification etc. However, using higher image sensors and optics is a steeply-priced and additionally proscribing manner of increasing pixel density in the photo.

An image and video scaler/up-sampling is a system converting image/video signals from one resolution to another resolution. Scalers are usually used to transform a lower resolution signal like 480pixal standard definition to a higher quality resolution like 1080pixal high definition and the process is known as "up-conversion" or "up-scaling". In contrast, converting from high to low resolution is known as "down-conversion" or "downscaling".

The operation which associates the estimation of a fine-resolution image/video from a rough-resolution input image/video is often termed as image/video frame upsampling. Since it can recover sharp edges and textures by suppressing pixel blocking means anomalies like noises and other visual artefacts from the coarse-resolution input image, it becomes an important imaging research topic in image processing.

Goal of image and video frame up sampling is to enlarge the dimension of the picture or video frame by maintaining the inherited information of the input image/video.So the term upsampling/upscaling of image or video frame refers to a process which tries to achieve a High Quality Resolution pictures through the input low Quality Resolution (LR) pictures or multiple Low Quality Resolution pictures within the same scene. Human can interpret image or video scene only on improved detail of the scene and it can be provided by HR image/video.

Furthermore, due to physical and economical limitations of cameras, higher resolution camera cannot be used in on-board circuit of satellite. A LR image/video carries less information and it is caused by low resolutioncamera. Image and video upsampling process aims to create such a High Quality Resolution pictures and video from the available input Low Quality Resolution picture with a low cost imaging device.

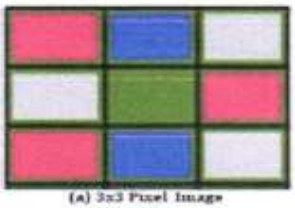
UP-SAMPLING METHODS

Up-sampling of an image, image frame, video might be classified in the following ways.

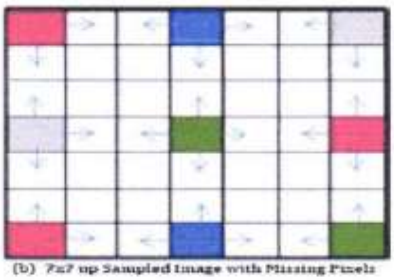
Based on Interpolation up Scaling

1. Interpolation using Nearest Neighbor.

In this type of up scaling interpolation, when resize the image or image frame the missing pixels are substitute with the nearest pixel of the missing pixel.



(a) 3x3 Pixel Image



(b) 7x7 up Sampled Image with Missing Pixels

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