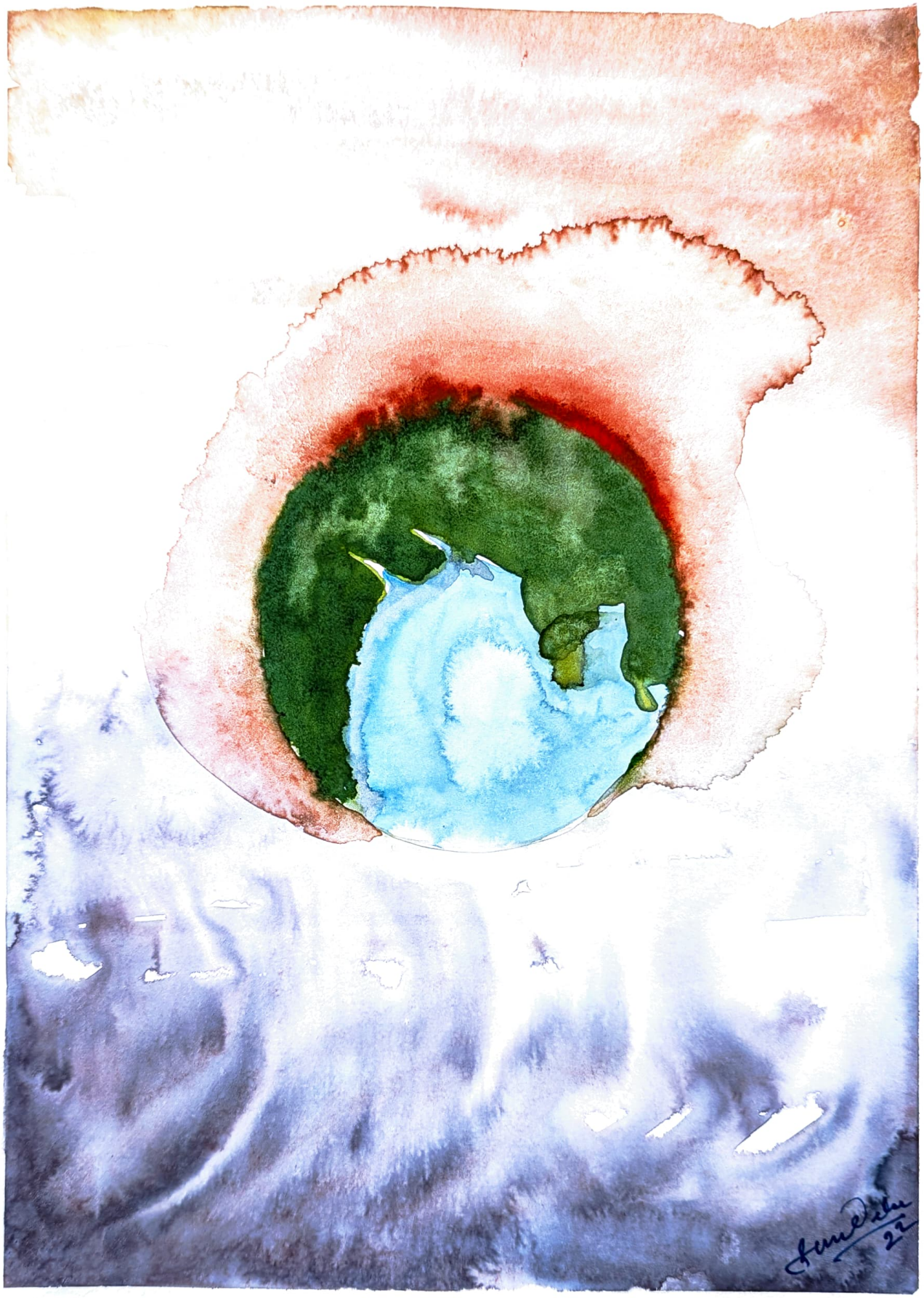

অন্তরীপ
The Cape....
১ম সংখ্যা



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অন্তরীপ

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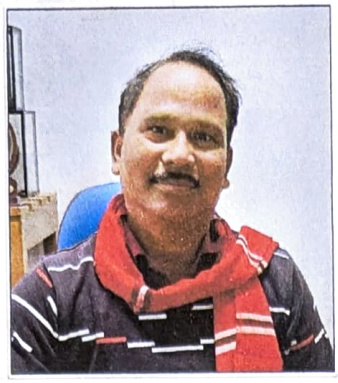

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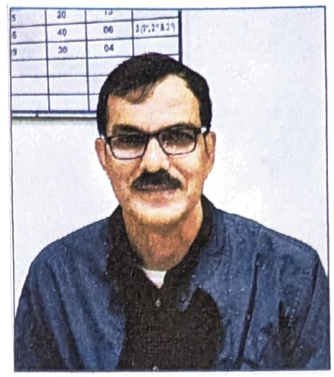

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সভাপতিৰ দু আষাৰ

ভূগোল বিজ্ঞান এনে এক বিষয় যি পৃথিৱীৰ উপৰিভাগৰ উপাদানসমূহৰ স্থান আৰু সময় প্ৰসংগত অধ্যয়ন কৰে। এই বিষয়ৰ বিভিন্ন ধাৰণা বা সূত্ৰসমূহ প্ৰয়োগ কৰি পৃথিৱীত অনুশীলন হোৱা বিভিন্ন সমস্যাৰ সমাধান আজিৰ যুগৰ ভূগোলবিদ সকলে আগবঢ়ায়। জলবায়ুৰ অভূত-পূৰ্ব অপ্ৰাকৃতিক পৰিৱৰ্তনে বৰ্তমানৰ মানৱ ভূগোলবিদক চমকিত কৰি তুলিছে। এই পৰিৱৰ্তনৰ লক্ষণ বয়োজেষ্ঠ সকলেই নহয়, কিশোৰ কিশোৰী সকলে অথবা যুৱক-যুৱতী সকলোৱে চিহ্নিত কৰিব পাৰিছে। অসময়ত হোৱা ধাৰাসাৰ বৃষ্টি, বৰ্ষা ঋতুৰ শুষ্ক অৱস্থা, কুঁৱলী-নিয়ৰৰ দৰে প্ৰাকৃতিক শোভাৰ বিলুপ্তি, গ্ৰীষ্মঋতুৰ বৰ্ধিত কাল আদি পৰিঘটনাই হৈছে আমাৰ দৰে স্থানীয় এলেকাত সততে দেখা পোৱা বা সঘনাই আলোচিত হোৱা জলবায়ু পৰিৱৰ্তনৰ লক্ষণ। সেয়ে সমসাময়িক ভূগোলবিদ সকলে এই ধৰণৰ অভাৱনীয় পৰিৱৰ্তনৰ কাৰণ, প্ৰক্ৰিয়া, ধৰাপৃষ্ঠত তাৰ বিতৰণ, ভৱিষ্যতৰ সম্ভাৱনীয় কুপ্ৰভাৱ আৰু এনে সমস্যা সমাধানৰ পন্থা আৰু অধ্যয়ন কৰি আহিছে।

মঙ্গলদৈ মহাবিদ্যালয়ৰ ভূগোলবিজ্ঞান বিভাগেও ভূগোল শিক্ষাৰ নৱ শিকাৰু সকলক জলবায়ু পৰিৱৰ্তনৰ দৰে স্পৰ্শকাতৰ বিষয়ৰ প্ৰতি আকৰ্ষিত তথা সচেতন কৰা উদ্দেশ্যে 'জলবায়ু' নামৰ বিষয়টো নিৰ্বাচিত কৰিছে। এই বছৰৰ পৰা বিভাগীয় অন্তিম ছাত্ৰ-ছাত্ৰীৰ দ্বাৰা হস্ত (হাত) লিখিত আলোচনী প্ৰকাশৰ জৰিয়তে তেনে বিষয়ৰ উপস্থাপন কৰিবলৈ থিৰ কৰিছে। এনে এক ব্যতিক্ৰমধৰ্মী প্ৰচেষ্টাই বাৰুকৈয়ে ছাত্ৰ-ছাত্ৰী সকলৰ ধৈৰ্য্য, একাগ্ৰতা, কলাকুশলতা, সৌন্দৰ্য্যবোধ আদি গুণৰ বৃদ্ধিৰ লগতে তেওঁলোকৰ মাজত দলীয় একতাৰ ভাৱ জগাই তুলিব। এই বেলি তৃতীয় ষাণ্মাসিকৰ সন্মান পাঠ্যক্ৰমৰ ছাত্ৰ-ছাত্ৰীসকলে আগভাগ লৈ নামাকৰণ কৰা "অন্তৰীপ - The cap" নামৰ এই হস্তলিখিত আলোচনীখনে নিশ্চয় বিভাগৰ এক সুনাম সৃষ্টি হৈ ভৱিষ্যতেও ধাৰাবাহিকতা অক্ষুণ্ণ ৰাখিব। সেই কামনাৰে —

ড° পবিত্ৰকুমাৰ নাথ
সহকাৰী অধ্যাপক
ভূগোল বিজ্ঞান বিভাগ
মঙ্গলদৈ মহাবিদ্যালয়।

সম্পাদকৰ একলম

আমাৰ সকলোৰে মনৰ অশান্ত আশাৰ মণিত প্ৰেৰণাৰ তাৰ "অন্তৰীপ" থাকে। যেতিয়া আমাৰ মন-প্ৰাণত নতুন কৰ্মই সপুৰাই জোৱাৰ তোলে তেতিয়াই অন্তৰীপৰ মাজত আৱিষ্কাৰ হয় নতুন সৃষ্টিৰ, নতুন প্ৰতিভাৰ। ঠিক তেনেদৰেই আমাৰ মঙ্গলদৈ মহাবিদ্যালয়ৰ ভূগোল বিভাগৰ বন্ধু বৰ্গৰ মনৰ মাজত উদ্ভৱ হোৱা কৰ্মস্পৃহা তথা নতুন কিবা এটা কৰাৰ দুৰ্বাৰ আকাংক্ষাৰ প্ৰয়াসে প্ৰাণ পাই উঠিছে। আমাৰ ভূগোল বিভাগৰ হাতে লিখা আলোচনী "অন্তৰীপ"।

বৰ্তমান পৰিৱেশৰ পৰিপ্ৰেক্ষিতত জলবায়ুৰ পৰিৱৰ্তন এক গুৰুতৰ তথা চিন্তনীয় বিষয়। জলবায়ুৰ পৰিৱৰ্তনে আমাক সজাগ তথা সতৰ্ক হ'বলৈ বাৰে বাৰে সকিয়াই আছে। জলবায়ুৰ হোৱা এই ভয়ানক পৰিৱৰ্তনৰ দায়ী আমি সকলো। জলবায়ুৰ প্ৰসংগত ল'ব লগা সজাগতা তথা সচেতনতাৰ দায়িত্ব কিন্তু আমাৰেই। সুইডেনৰ ১৬ বছৰীয়া যুৱতী গ্ৰেটা থুনবাৰ্গে কৰা জলবায়ু সম্পৰ্কীয় সজাগতা সচেতনতা আমাৰ সকলোৰে আদৰ্শ হোৱা উচিত। আমাৰ সমাজত গ্ৰেটা থুনবাৰ্গ এজন নহয়, হেজাৰ জন হোৱাটো কামনা কৰো। তেনে জলবায়ুৰ প্ৰতি সজাগতা তথা সচেতনতা জিলিকি উঠিছে আমাৰ এই 'অন্তৰীপ'ৰ পাতত।

সদৌ শেষত সম্পাদকীয় পৃষ্ঠাৰ মাজেৰে, "অন্তৰীপ" খনিক প্ৰাণ দিবলৈ উৎসাহ প্ৰদান কৰা মঙ্গলদৈ মহাবিদ্যালয়ৰ ভূগোল বিজ্ঞান বিভাগৰ মাননীয় মুৰব্বী অধ্যাপক ড° পবিত্ৰ কুমাৰ নাথ ছাৰৰ সমন্বিতে সমূহ অধ্যাপক অধ্যাপিকা সকলোলৈকে মোৰ আন্তৰিক শ্ৰদ্ধা আৰু কৃতজ্ঞতা নিবেদিছো। "অন্তৰীপ" খনি সজাই পৰাই তোলাত মোক বিশেষ সহযোগিতা আগবঢ়োৱা শ্যাম, ৰিয়াজুল, আলম, শশাংক, অদিতি, নিকিতা, নিজু, কৃষ্ণা, অঞ্জনা হঁতক মোৰ আন্তৰিক কৃতজ্ঞতা জ্ঞাপন কৰিছোঁ। ইয়াৰ লগে লগে "অন্তৰীপ" খনি সম্পাদনা কাৰ্যত সহযোগিতা আগবঢ়োৱা ভূগোল বিজ্ঞান বিভাগৰ সমূহ বন্ধু-বৰ্গৰ মন, কৰ্ম আৰু সহায়ৰ সলাগ লৈছো।

— চুমন ডেকা
সম্পাদক
"অন্তৰীপ, The cape"

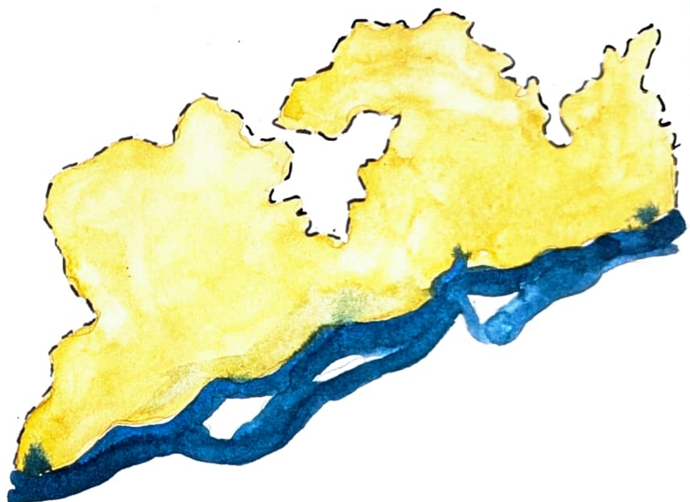
সূচীপত্র

দৰঙৰ জলবায়ু

— শ্যাম লাল সৰকাৰ —

অসমৰ কেন্দ্ৰীয় অংশত আৰু মহাবাহু ব্ৰহ্মপুত্ৰৰ উত্তৰপাৰে অৱস্থিত দৰং হৈছে অসমৰ এটি উল্লেখযোগ্য জিলা। ইয়াৰ মুঠ মাটিকালি হৈছে প্ৰায় 1850 বৰ্গ কিলোমিটাৰ আৰু মুঠ জনসংখ্যা প্ৰায় 928500 (2011 চনৰ লোকপিয়ল) ইয়াৰ উত্তৰে ওদালগুৰি জিলা, দক্ষিণে ব্ৰহ্মপুত্ৰ নদী, পূবে শোণিতপুৰ জিলা আৰু পশ্চিমে কামৰূপ জিলা। দৰং জিলাখন 26° 10′ N ৰ পৰা 26° 45′ N অক্ষাংশ আৰু 91°45′ E ৰ পৰা 92°22′ E দ্ৰাঘিমাংশলৈ বিস্তৃত।

যিহেতু দৰং জিলাখন 26° 10′N ৰ পৰা 26° 45′ N অক্ষাংশলৈ বিস্তৃত। গতিকে, দৰং জিলাখন উপক্ৰান্তীয় মৌচুমী জলবায়ুৰ অন্তৰ্গত। ইয়াৰ প্ৰধান বৈশিষ্ট্য হৈছে আৰ্দ্ৰ গ্ৰীষ্মকাল আৰু শুষ্ক শীতকাল। দৰং জিলাৰ জলবায়ু মানুহ বসবাসৰ বাবে অতি অনুকূল। দৰং জিলাৰ জলবায়ু মৌচুমী বতাহৰ দ্বাৰা প্ৰভাৱিত যদিও জিলাখনৰ ভৌগোলিক বৈচিত্ৰ্যই বা কাৰকে ইয়াৰ জলবায়ু যথেষ্ট বৈচিত্ৰময় কৰি তুলিছে। ভৌগোলিক অৱস্থান, ভূপ্ৰকৃতি, আৰৱসাগৰ, বংগোপসাগৰ, ভাৰত মহাসাগৰ, দক্ষিণ পশ্চিম আৰ্দ্ৰ মৌচুমী বায়ুপ্ৰবাহ, ভূমিৰ প্ৰকৃতি, উচ্চতা, উদ্ভিদ আদি কাৰকে দৰঙৰ জলবায়ুক বাৰুকৈয়ে প্ৰভাৱ পেলাইছে।



দৰং জিলাৰ বাৰ্ষিক উত্তাপৰ পৰিমাণ গড়ে 10°C ৰ পৰা 30°C ভিতৰত। উচ্চতাৰ তাৰতম্য অনুসৰি, জিলাখন পূব-পশ্চিম দিশত বিভিন্ন বলয়ত পৃথক। ইয়াৰে মধ্য বলয়টো আটাইতকৈ গৰম আৰু উত্তৰ বলয়টো আটাইতকৈ শীতল হয়। অঞ্চলটোৰ অন্যঅংশত মধ্যসীমা পৰিসৰৰ উষ্ণতা অনুভৱ হয়। শীতকালত জিলাখনৰ উত্তৰ অংশ, জিলাখনৰ বাকী অংশতকৈ শীতল হয়, কিয়নো এই অংশটো ওদালগুৰি পাহাৰ আৰু বনাঞ্চলৰে আবৰি আছে। ফেব্ৰুৱাৰীৰ শেষৰ পৰা বৃদ্ধি হ'বলগীয়া অঞ্চলটোৰ তাপমাত্ৰা জুলাই আৰু আগষ্ট মাহত সৰ্বোচ্চ বিন্দুত উপনীত হয়। জানুৱাৰী হৈছে বছৰটোৰ

আটাইতকৈ শীতল মাহ । এই মাহত উষ্ণতাৰ পৰিমাণ 15°ৰ তলত থাকে আৰু আগষ্ট হৈছে বছৰটোৰ আটাইতকৈ গৰম মাহ । এই গৰম মাহৰ উষ্ণতাৰ পৰিমাণ 35° C ৰ ওপৰত থাকে ।

দৰং জিলা বাৰ্ষিক বৃষ্টিপাতৰ পৰিমাণ 150 ৰ পৰা 250 cm লৈ হয় । সৰ্বাধিক বৰষুণ জিলাখনৰ পশ্চিম অংশত হয় । দক্ষিণ পশ্চিম আৰু মৌচুমী বায়ু প্ৰবাহৰ প্ৰভাৱত জুনৰ পৰা ছেপ্তেম্বৰ মাহলৈ জিলাখনত সৰ্বাধিক বৰষুণ হয় । ফেব্ৰুৱাৰী মাহৰ পৰা মাৰ্চ মাহৰ শেষলৈ ধূলিৰ ধুমুহা দেখিবলৈ পোৱা যায়, কিয়নো অঞ্চলটো ব্ৰহ্মপুত্ৰ নদীৰ পাৰত অৱস্থিত । প্ৰাক্ মৌচুমীকালীন বা বসন্ত কালত নিম্নচাপ সৃষ্টি হোৱাত দৰং জিলা বৰদৈচিলাৰ দৰে প্ৰকাণ্ড ধুমুহাৰ অধীন হয় । মৌচুমী আৰু প্ৰত্যাৱৰ্তী মৌচুমী ঋতুত বঙ্গোপসাগৰৰ পৰা অহা ঘূৰ্ণীবতাহ, ধুমুহাৰ প্ৰভাৱ দৰং জিলাত আক্ৰমণ দেখা যায় যাৰ ফলত ইয়াৰ পৰা জিলাখনৰ বিস্তৰ ক্ষতিসাধন হয় । মাৰ্চৰ পৰা মে' মাহত আকাশত বিজুলি, ঢেৰেকণি মাৰে আৰু প্ৰচুৰ বজ্ৰপাত হয় । শীতৰ মাহবোৰত প্ৰচুৰ কুঁৱলী পৰে আৰু মাঘ-ফাগুন মাহত বৰষুণৰ অভাৱত কিছু কিছু অঞ্চলত খৰাং বতৰৰ সৃষ্টি হয় ।

দৰং জিলাৰ জলবায়ু মানুহ আৰু অন্যান্য জীৱ বসবাসৰ বাবে অতি উপযোগী । দৰং জিলাত ওপৰত উল্লেখ জলবায়ু বিৰাজ কৰা বাবে দৰংত বিভিন্ন প্ৰকাৰৰ উদ্ভিদ দেখা যায় । 150 cm বৰষুণ হোৱা অঞ্চলত পৰ্ণপাতী উদ্ভিদ (আম, শাল, শিমলু আদি) দেখা পোৱা যায় আৰু লগতে 75-100 cm বৰষুণ হোৱা অঞ্চলত নলখাগৰিৰ দৰে তৃণজাতীয় উদ্ভিদ গজে । ধান, মৰাপাট, কুহিয়াৰ, পাচলি, চাহ প্ৰভৃতি দৰং জিলাত বিৰাজ কৰা অনুকূল জলবায়ুৰ বাবে কৰা হয় । গতিকে, দৰং জিলাৰ জলবায়ুৱে অৰ্থনৈতিক ক্ষেত্ৰতো বাৰুকৈয়ে প্ৰভাৱ পেলায় ।

জৈৱ বৈচিত্ৰতাত জলবায়ুৰ প্ৰভাৱ

- হিমাশ্ৰী শৰ্মা

কোনো জীৱৰ প্ৰকাৰ আৰু ইহঁতৰ প্ৰকাৰৰ পৰিবৰ্তনশীলতা, লগতে যিটো পাৰিস্থিতিতন্ত্ৰত ইহঁত বাস কৰে বা জন্মলাভ কৰিছে তাৰ প্ৰকাৰ বা পৰিবৰ্তনশীলতা আদিবোৰকেই জৈৱ-বৈচিত্ৰতা বোলে। মুকলি মৰুভূমিৰ পৰা গভীৰ অৰণ্যলৈ, তু-চিচ বৰফাবৃত শৃংগৰ পৰা আৰম্ভ কৰিলে, বিভিন্ন ধৰণৰ আকাৰ, গোন বা ৰঙৰ পাৰ্থক্য থকা জীৱ পোৱা যায়। কিন্তু প্ৰত্যেকৰে মাজত এটা উমৈহতীয়া ইকলজিকেল সম্পৰ্ক বিৰাজ কৰি থাকে।

১৯৯২ চনত 'Convention of Biological Diversity' এ জৈৱ বৈচিত্ৰতাক সকলো ধৰণৰ জীৱৰ (ভূমিস্থিতি, সামুদ্ৰিক বা অন্যান্য জলীয় পাৰিস্থিতিতন্ত্ৰ আদিৰ বাস কৰা) পৰিবৰ্তনশীলতা লগতে পৰিবৰ্তনশীলতাক বুজাইছে।

জৈৱ বৈচিত্ৰতাৰ বিভিন্ন এককবোৰ এক প্ৰজাতিৰ জীৱবোৰৰ মাজত অথবা আনুষংগিক স্তৰৰ পৰা বিভিন্ন প্ৰজাতিৰ জীৱবোৰৰ মাজত দেখিব পোৱা বৈচিত্ৰতাৰ স্তৰলৈ বিয়পি থাকে — ১) জিনগত বিচিত্ৰতা - ই বৈচিত্ৰতাৰ উৎস প্ৰাথমিক উৎস। জীৱদেহত পোৱা জিনবোৰ এক বৃহৎ সংখ্যক সংযুক্তি দিব পাৰে আৰু তাৰফলত কিছু পৰিবৰ্তন পোৱা যাব পাৰে। যদি কোনো এটা জিনে সেই প্ৰজাতিৰ ভিতৰতেই নতুন সংযুক্তি-ৰ কাৰণে বিভিন্ন বিবৰণ দিয়ে তেতিয়া তাক জিনগত পৰিবৰ্তনশীলতা বুলি কোৱা হয়।

২) প্ৰজাতিৰ বিচিত্ৰতা - এই পৰিবৰ্তন কোনো এটা প্ৰজাতিৰ জনসংখ্যা-ৰ মাজতেই পোৱা যায়। অথবা ভিন্ন ভিন্ন প্ৰজাতিৰ কোনো সম্প্ৰদায়ৰ মাজত দেখা যায়।

৩) পাৰিস্থিতিতন্ত্ৰৰ বিচিত্ৰতা :- ইয়াত পৰিবেশৰ সম্পৰ্কীয় চক্ৰ আদিৰ পৰিবৰ্তনশীলতা দেখা পোৱা যায়। এই পাৰিস্থিতিতন্ত্ৰত ভৌতিক কাৰক যেনে- আৰ্দ্ৰতা, তাপ, উচ্চতা, অধঃক্ষেপণ আদিৰ পৰিবৰ্তন দেখা যায়।

গছ এজোপাই উষ্ণ মণ্ডলীয় অঞ্চলৰ মাটিত তাৰ কাৰ্য সম্পাদন কৰিব পাৰে। এইটো উষ্ণ মণ্ডলীয় অৰণ্য আৰু বায়ুমণ্ডল অৰণ্য ধৰণৰ ক্ষেত্ৰত প্ৰযোজ্য। ইয়াৰ মূল কাৰণ হল পাৰিস্থিতিতন্ত্ৰৰ এই বিচিত্ৰতাৰ স্থিতি থকা পৰিবেশৰ ওপৰত নিৰ্ভৰশীল আৰু ই পৰিবেশৰ লগত সাম্য অৱস্থাত থাকে

জলবায়ুৰ বৈচিত্ৰতাৰ বিশেষে জৈৱ বৈচিত্ৰতাও ভিন্ন ভিন্ন হোৱা দেখা যায়। যিবোৰ অঞ্চলত প্ৰজাতিৰ সংখ্যা প্ৰচুৰ তাৰ লগে লগে প্ৰচুৰ প্ৰজাতিয়ে অঞ্চল বিশেষত বাস কৰে, সেইবোৰ অঞ্চলেই উষ্ণঅঞ্চল (Hot spot)। বিশ্বত তেনে ৩৬ টা অঞ্চল আছে। এই উষ্ণ অঞ্চলবোৰে পৃথিৱীৰ মাটিভাগৰ দুই শতাংশতকৈয়ো কম ঠাই আগুৰি আছে আৰু মাটিভাগৰ প্ৰায় ৫০ শতাংশ জৈৱ বৈচিত্ৰতা এই অঞ্চলতেই পোৱা যায়। তেনে কেইটামান উষ্ণ অঞ্চল হৈছে - বিষুবীয় অণ্ডিজ, মেচ'আমেৰিকান অৰণ্য, ভূ-মধ্য সাগৰী দ্ৰোণী, ভাৰত বাৰ্মাৰ পূব হিমালয়, পশ্চিমঘাট আৰু শ্ৰীলংকা ইত্যাদি।

আগতে উল্লেখ কৰা দৰেই জলবায়ুৰ বৈচিত্ৰতা অৰ্থাৎ কোনো এখন ঠাইৰ নিৰ্দিষ্ট জলবায়ুৰ ওপৰত নিৰ্দিষ্ট বৈচিত্ৰতাৰ সৃষ্টি হয়। অৰ্থাৎ, কোনো এটা নিৰ্দিষ্ট জৈৱবৈচিত্ৰতাও জলবায়ুৱে প্ৰত্যক্ষ তথা পৰোক্ষভাৱে প্ৰভাৱ পেলায়। বৰ্তমান মানৱ পৰিৱৰ্তন জলবায়ুৱে এই জৈৱ-বৈচিত্ৰতাত বাৰুকৈয়ে প্ৰভাৱ পেলাইছে। উদাহৰণস্বৰূপে আমি পিন্ধা কাপোৰ-কানি, খোৱা আহাৰ, থকা ঘৰ ইত্যাদি জলবায়ুৰ ওপৰত নিৰ্ভৰশীল। জলবায়ুৰ পৰিৱৰ্তন হ'লে মানুহে কিছু পৰিমাণে ইয়াৰ লগতে খাপ খুৱাই জীয়াই থাকিলেও আন বহুতো প্ৰাণী বা উদ্ভিদ মৃত্যুমুখত পৰে। আনকি কিছুমান নিৰ্দিষ্ট এলেকাৰ থকা বিৰল প্ৰাণী জলবায়ুৰ পৰিৱৰ্তনে কৰাৰো আশংকা থাকে।

বায়ুমণ্ডলৰ উত্তাপ বৃদ্ধি পোৱা বাবে মেৰু অঞ্চলত যুগ যুগ ধৰি জমা হৈ থকা বৰফ গলিছে। ইয়াৰ পৰিমাণস্বৰূপে সাগৰৰ পানী উচ্চিত হৈ উপকূল অঞ্চলত ভাবুকিৰ সৃষ্টি কৰিছে। আনহাতে, বায়ুমণ্ডলৰ উত্তাপ বৃদ্ধিয়ে বতৰ চক্ৰৰ পৰিৱৰ্তন কৰি ঠায়ে ঠায়ে অনাবৃষ্টি হয়। গছ-গছনি নমকাৰ বাবে বৰষুণৰ পৰিমাণ কমি মৰুকৰণ হৈছে।

তদুপৰি অতিপ্ৰাপ্তি উত্তৰপূৰ্বাঞ্চলত ঠাইতে বৰষুণ হোৱা, লেতেৰা ঘটনাৰ বাবে দুৰ্ভীক্ষকাৰক প্ৰভাৱো। যেনে - বনানি ধ্বংস। বতৰ চক্ৰৰ পৰিৱৰ্তনে আকৌ কোনো এলেকৰ ঠাইত জনবসতিৰ গঠন সলনি হ'ব পাৰে।

জলবায়ুৰ পৰিৱৰ্তনে কোনো এটা প্ৰজাতিক বিলুপ্ত কৰিবলৈও সক্ষম হয়, সেয়ে সকলোৱে বৰ্তমান এই বিস্ফোটক বিশেষভাৱে অৱগত হৈ ইয়াৰ সমাধান এটা যুগুতোৱাত গুৰুত্ব দিয়াটো প্ৰয়োজনীয় হৈ পৰিছে।

অসমৰ কৃষি ব্যৱস্থাত জলবায়ুৰ প্ৰভাৱ

-চুমন ডেকা

অসম উত্তৰ-পূৰ্ব ভাৰতৰ মূল পথ তথা উত্তৰপূৰ্বৰ আটাইকেইখন প্ৰদেশৰ মাতৃ স্বৰূপ। ২৫° উত্তৰ অক্ষাংশৰ পৰা ২৭°৩০' উ: অক্ষাংশলৈ আৰু ৮৯°৪৬' পূৰ্ব দ্ৰাঘিমাৰ পৰা ৯৬°৩০' পূ: দ্ৰাঘিমালৈ বিস্তাৰিত উত্তৰ-পূৰ্বাঞ্চলৰ অৰ্থনৈতিক ক্ষেত্ৰসমূহত অসমৰ অৱদান মন কৰিব লগীয়া। উত্তৰ পূৰ্বাঞ্চলৰ অৰুণাচল প্ৰদেশ, নাগালেণ্ড, মণিপুৰ, মিজোৰাম, ত্ৰিপুৰা আৰু মেঘালয়ৰ ভিতৰত অসম কৃষি-কৰ্ম, অৰ্থনৈতিক দিশৰ পৰা যথেষ্ট আগবঢ়া এখন প্ৰদেশ।

অসমৰ কৃষিয়ে ক্ষেত্ৰসমূহে অসমক অৰ্থনৈতিক ভাৱে সবল কৰাত গুৰুত্বপূৰ্ণ ভূমিকা গ্ৰহণ কৰিছে। এই কৃষিসমূহক কেন্দ্ৰ কৰি অসমৰ মানুহে, ভিন্ন লোকৰ দৈনিক জীৱনৰ যুঁজসমূহত অগ্ৰসৰ হ'বলৈ সক্ষম হৈছে। এই কৃষিক্ষেত্ৰসমূহত জলবায়ুৰ এক গুৰুত্বপূৰ্ণ অৱদান আছে। অসমৰ জলবায়ুৰ অসমৰ কৃষিক্ষেত্ৰসমূহত প্ৰভাৱ মন কৰিবলগীয়া। অসমৰ জলবায়ু সাধাৰণতে ক্ৰান্তীয় মৌচুমীয় জলবায়ু ('Tropical monsoon Rainforest climate') বুলি ধৰা হয়। প্ৰবল বৃষ্টিপাত আৰু আৰ্দ্ৰতাপূৰ্ণ জলবায়ুৱে পুষ্ট অসম প্ৰদেশত গ্ৰীষ্ম আৰু শীত কালৰ আৰম্ভণিতে প্ৰবল বৃষ্টিপাত হয়। বছৰটোৰ জুন জুলাই মাহত মৌচুমী বতাহৰ প্ৰভাৱত ঘন বৰষুণ হয়। শীত কালত বৰষুণ প্ৰায় নাই বুলিবই পাৰি। অসমৰ এই প্ৰকাৰৰ জলবায়ুৱে অসমৰ কৃষি ক্ষেত্ৰসমূহত বৰঙণি যোগাই আছে।

ধান অসমৰ প্ৰধান তথা মুখ্য কৃষি শস্য। ধানে অসমৰ মুঠ ৯৮% খাদ্যৰ যোগান ধৰি আছে। ধান খেতি ২.৫৪ মিলিয়ন হেক্টৰ মাটিতেই কৰি অহা হৈছে। ধান খেতিৰ বাবে পানীৰ প্ৰয়োজন যথেষ্ট হয়। আৰু এই পানী বৰষুণে যোগান ধৰে। ধান খেতিত প্ৰায় ২০০ চেমি তকৈও অধিক বৰষুণৰ প্ৰয়োজন হয়। সেইদিশৰ পৰা অসম ধান খেতিৰ বাবে উপযোগী এখন ৰাজ্য। ২৫° চেলচিয়াছ তাপমান এই খেতিৰ বাবে বন্ধু স্বৰূপ। জলবায়ুৰ এনে অৱস্থিতিৰ বাবে ধান খেতি অসমত প্ৰচুৰ পৰিমাণে হয়। ধানৰ লেখিয়াকৈ আন আন খেতি সমূহো অসমত প্ৰচুৰ পৰিমাণে কৰা হয়। তাৰ ভিতৰত হ'ল সৰিয়হ, মাহ, মাখৈ, আলু, মৰাপাট বিভিন্ন শাক-পাচলি আদি। ইয়াৰ লগে লগে অসমৰ চিনাকী স্বৰূপ চাহ খেতিও অসমৰ কৃষিৰ এক অভিন্ন অংগ। অসমৰ জলবায়ুক চিনাকী কৰি দিব পৰা এই চাহ খেতিৰ জৰিয়তে অসমে প্ৰচুৰ ৰাজহ সংগ্ৰহ কৰে। অসমৰ জলবায়ু সম্বন্ধে আলোকপাত কৰোঁতে প্ৰাক্-মুহূৰ্তত আমি এটা কথা স্বীকাৰ কৰিবই লাগিব যে অসমৰ এই জলবায়ুৰ মূল কাৰণ কিন্তু উত্তৰ-পূৰ্বৰ মিজোৰাম আৰু ত্ৰিপুৰাৰ মাজেৰে যোৱা কৰ্কট ক্ৰান্তি ৰেখা (Tropic of Cancer).

CLIMATE

Anjana Devi

Climate is the average weather in a given area over a longer period of time. A description of a climate includes information on e.g. the average temperature in different seasons, rainfall and sunshine. Also a description of the extremes is often included. Climate change is any systematic change in the long-term statistics of climate variables such as temperature, precipitation, pressure or wind sustained over several decades or longer. Climate change can be due to natural external forcings (changes in solar emission or changes in the earth's orbit, natural internal processes of the climate system) or it can be human induced.

The classical period used for describing a climate is 30 years, as defined by the World Meteorological Organization (WMO).

Climatic Factors

Climate factors are terrestrial factors influencing the weather and weather condition. Climate components and climate factors are composing the clime in its variations. Climate factors are stable and/or only slightly changing factors, except the vegetation cover (land use):

- → Geographic Latitude
- → Altitude
- → Land and Water Pattern
- → Relief
- → Vegetation cover (land use)
- → Exposition

Components of the climate system

The atmosphere envelops the earth and extends hundreds of kilometres from the surface. It consists mostly of inert nitrogen (78%) oxygen (21%) and argon (0.9%). Some trace gases in the atmosphere, such as water vapour and carbon dioxide are the gases most important for the workings of the climate system, as they are greenhouse gases which allow visible light from the sun to penetrate to the surface, but block some of the infrared radiation the Earth's surface emits to balance the Sun's radiation. This causes surface temperatures to rise.

The hydrosphere proper contains all the liquid water on Earth, with most of it contained in the world's oceans. The ocean covers 71% of Earth's surface to an average depth of nearly 4 kilometres, and ocean heat content is much larger than the heat held by the atmosphere. It contains seawater with a salt content of about 3.5% on average, but this varies spatially.

The cryosphere contains all parts of the climate system where water is solid. This includes sea ice, ice sheets, permafrost and snow cover. Because there is more land in the Northern Hemisphere compared to the Southern Hemisphere, a larger part of that hemisphere is covered in snow. Both hemispheres have about the same amount of sea ice. Most frozen water is contained in the ice sheets on Greenland and Antarctica, which average about 2 km in height.

The biosphere also interacts with the rest of the climate system. Vegetation is often darker or lighter than the soil beneath, so that more or less of the sun's heat gets trapped in areas with vegetation. Vegetation is good at trapping water, which is then taken up by its roots. Precipitation and temperature influences the distribution of different vegetation zones.

CLIMATE OF INDIA

—Kaushik Kr. Kayastha

India has a tropical monsoon type climate. This is because India lies in tropical belt and it's climate is influenced by the monsoon winds. Hot summers and dry winters are characteristics of the monsoon type climate.

Ⓐ Factors affecting the climate of India :- India has many features which affects it's climate that are —

① The Himalaya :- Protect the North Indian plain from cold wind, rainfall over Northern plain and central asia occures after striking the himalaya.

② Latitude :- The southern part lies in the tropical zone experience hot climate, the Northern part lies temperate zone experience hot summers, cold winter.

③ Altitude :- Temperal decrease with higher latitude, There is decrease of ic for every 166 m. rise in height.

④ Seas :- Bay of Bangle, Arabian Sea.

⑤ Distance from Sea :- Experience a continental type climate, summers are extreme hot winters are extremly cold.

India has a various latitude, longitude, altitude, relief extend. So the climate of India are while Rajasthan have 48-50°C in june Pahalgam in Kashmir experience 22°C in some. Kerela temperature during winter 20-20°C during winter, in kargil the temperature may below 40°C. while the monsoon winds are caused by the differential heating and colling of land and sea. The land heats quickly in summer and hand have low pressure as the sea is relatively cold and high pressure. It may in may, June, July. During winter oceans tend to become warm and the land cold down. High Pressure developes land and low pressure in Indian ocean. It is called North East monsoon. Rainfall in India is mainly concentrate to month of july, agust and September. While mawsynram and cherapunji receive 1100 cm rainfall Jaisalmer in Rajasthan receive only about 9cm. Tamilnadu recieve rainfall

in winters. The cultivation process is better in India. Because of monsoon and rainfall. India have distinct seasonal pattern. Summers in India begins from march and continues till may highest temperature 48°C. Southest monsoon begins june and last September. This monsoon devide the Arabian sea and Bay of Bangle Branch. During october and November southwest monsoon become weakers and start retearing. This seas an Bay of Bangle rise to cyclonic depression. The cold weathere season in India begins during mid movembere and stay till February. December and summers are the coldest month. In this season temperatures in January. Thiruvantha puram is 31°C and varanashi only 16°C and himalay ranges covered with snow.

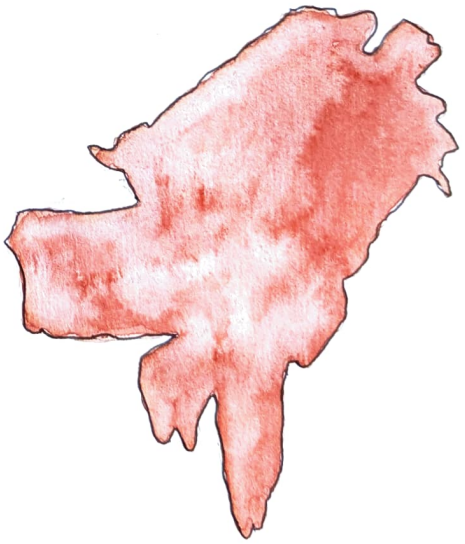
— Pristha Sarmah

Climate of North-East India

North Eastern India is one of the coldest regions in India with an average daily high temperature of only 31 degrees. The climate is very warm with an annual average of 31 degrees, but has few truly tropical and muggy months. It is warm to hot all year round, inviting bathing at average water temperature of 28 degrees. Due to less rain, the best time for travelling is from November to March. The most rain days occur from May to September.

Sunshine hours per day

The number of hours of sunshine refers to the time when the sun is actually visible. That is, without any obstruction of visibility by clouds, fog or mountains. With 7 hours per day, November is the sunniest month in the greater region of North Eastern India. In July, the sun shines the least.



Rain days per month

A rain day is a day on which at least 0.1 mm precipitation per square meter falls. This can be rain, snow hail or even dew. So it doesn't have to rain the whole day. With 23 rain days, July offers the most rain days while December has the fewest.

Water temperature in °C

Water temperature depends not only on solar radiation within the same region, but also on ocean currents. For example, depending on the season, cold or warm water masses are moved from other areas. The warmest water temperatures in North Eastern India are in May, when the water is 29°C.

Relative humidity

Warm air can absorb more moisture than cold air. The relative humidity indicates how much moisture can be physically contained in the air. At high humidity, a person feels uncomfortable and perceives this as oppressive. In general a relative humidity of 40.60% feels pleasant with humidity averaging 54%, July is the most uncomfortable. In march on the other hand, it is easier to endure.

Humidex

The 'Humidex' (humidity index) is an index of well-being in warmer areas, calculated from the air temperature, relative humidity and dew point. The index corresponds approximately to the temperature felt. At high temperature, the body transports heat away by sweating. At high humidity, the ambient air can only absorb a small amount of sweat and thus one feels uncomfable.

North east India has a predominantly humid sub tropical climate with hot, humid summers, severe monsoons, and mild winters.

IMPACT OF CLIMATE CHANGE ON HUMAN BEINGS

Shah Alam

Climate is changing in an accelerating pace. Climate change has always happened on earth but its rapid rate and important magnitude occuring now are of great concern. Climate change is mainly caused by humans, especially through increased greenhouse gas emissions. Climate change is recognised as a serious threat to ecosystem, biodiversity and health. It is associated with alterations in the physical environment of the planet earth. Climate change affects life around the globe. It impacts plants and animals with consequences for the survival of the species. In humans, climate change has multiple deleterious consequences. Climate change creates water and food insecurity, increased mortality and population movement. It is anticipated that there will be a rise in global mean temperatures of up to 5.4°c by 2100. There is overwhelming evidence showing the human activities have contributed to climate change over the past century while changes in solar activity and volcanic eruption have played a minor role. Over the last several decades, humans have engaged in large-scale transformation of natural system causing a net accumulation of carbon dioxide in the atmosphere. Personalised adaption to the consequences of climate change and preventive measures are key challenges for the society.

Impact of Climate Change on Humans

Climate change is a major threat to human existence. It has multiple deleterious health consequences leading to increased morbidity and mortality.

Temperature

The human core temperature averages 37°c and is tightly controlled within a range of 33.2°c and 38.2°c to ensure optimal physiological function. Extreme deviations from the normal core temperature i.e a decrease below 27°c (hypothermia) or an increase above 42°c (hyperthermia) can be fatal. Climate change is resulting in increased exposures to intense heat in many parts of the world. With increasing temperature, there are physiological reactions in humans creating risk for some organs and exposing individuals to increased morbidity and mortality (eg. reduced performance, behaivoural changes, heat stroke, respiratory failure etc.)

Nutrition

Climate change creates water and food insecurity/shortage with significant impact on hygiene, nutrition and food safety in several countries. In absence of proper desalination of drinking water impacted by increased salinity following sea-level rise, the high exposure to salt through drinking water, food and bathing can lead to several health problems (eg - hypertension and skin disease). In many regions, food production systems are negatively impacted by climate change.

Infection & Disease

Climate change through variation temperature, percipitation/humidity (acid rain) wind and solar radiation influences the spread of some infectious diseases since these variations may impact the survival, reproduction and distribution of disease pathogens and vectors/host as well as their transmission environment. Several infectious diseases are involved including malaria, dengue and lyme disease.

Population Movement

Climate change by creating unsuitable living conditions (eg - desertification, sea level rise, food shortage, health issues) will move many people (forced displacement, planned resettlement, migration). Poor communities are particularly impacted by human movement. It is estimated that by 2050 upto several hundred million persons will be moved. Population movement will expose countries to multiple challenges.

Vulnerable Population

Overall children, elderly, indigenous groups, poor individuals, outdoor workers, remote populations and subjects with pre-existing condition are disproportionately affected by climate change. Low income and geographically vulnerable countries are most affected by the health consequences of climate change. However in higher-income countries there is also high vulnerability in some ethnic and socio-economic groups.

GLOBAL WARMING AND ITS IMPACT ON EARTH

— Saswati Barman

Global warming is a gradual increase in the earth's temperature generally due to the greenhouse effect caused by increased levels of carbon-dioxide, CFC's, and other pollutants. This change has disturbed the climate Pattern of the earth.

The phenomenon has been observed over the past one or two countries. The concept of global warming is quite controversial but the scientists have provided relevant data in support of the fact that the temperature of the earth is rising constantly.

There are several cause of global warming, which have a negative effects on humans, plants and animals. These cause may be natural or might be the out come of human activities. In order to curb the issues. It is very important to understood the negative impacts of global warming.

* Following are the major causes of global warming :

- Man made causes of global warming :

■ Deforestation —

Plants are the main source of oxygen. They take in carbon dioxide and release oxygen thereby maintaining environmental balance. Forest are being depleted for many domestic and commercial purpose. This has led to an environmental inbalance. Thereby giving rise to global warming.

■ Use of Vehicles —

The use of vehicles, even for a very short distance results in various gaseous emissions. Vehicles burn fossil fules which emit a large amount of carbon dioxide and other toxins into the atmosphere resulting in a temperature increase.

• Natural causes of global warming –

■ Volcanoes –

Volcanoes are one of the largest natural contributors to global warming. The ash and smoke emitted during volcanic eruptions goes out into the atmosphere and affects the climate.

■ Water Vapour –

Water vapour is a kind of greenhouse gas. Due to the earth's temperature, more water gets evaporated from the water bodies and stay in the atmosphere adding to global warming.

• Effects of global warming : ■ Rise in Temperature –

Global warming has led to an inevedible increase in earth's temperature. Since 1880, the earth's temperature has increased by ~1 degrees. This has resulted in an increased in the melting of glaciers. which have led to an increase in the sea level. This could have devastation effects on coastal regions.

■ Climate Change:

Global warming has led to a change in climatic conditions. There are droughts at some places and floods at some. This climatic imbalance is the result of global warming.

■ Threats to the ecosystem:

Global warming has effected the coral reefs that can lead to the loss of plant and animal lives. Increase in global temperatures has made the fragility of coral reefs even worse.

FACT OF WORLD CLIMATE

* Climate change could be irreversible by 2030
* Our oceans are dying.
* More than 1 million species face extinction.
* Greenhouse gas level are at on all-time high.
* Our remaining carbon budget is tiny.
* We're on the path of excending 1.5°C of warming
* 800 - 600 million years ago, the earth was so cold that it was covered with ice.
* Every 40,000 years, the earth change position and this cause climate change.
* We are losing 1.2 trillion ton of ice each year.
* The ocean absorbs most of the heat we produces.

—Sashanka M. Kashyap

Quiz

1. World's warmest country - Mali (average temperature 28.83°C)
2. World's coldest place — Verkhoyansk
3. Device use to measure air pressure — Barometer
4. Device use to measure wind — Anemometer
5. Unit of air Pressure — Milibar

CLIMATE AND ECONOMIC DEVELOPMENT

Nishita Deka

Climat is the long-term pattern of weather in a particular area. Weather can change from hour-to-hour, day-to-day, month-to-month or even year-to-year. A region's weather pattern usually tracked for at least 30 years, are considered its climate! Climate change has potential to do significant economic harm, and poses worrying tail risks. Hot countries tend to be poorer, but debate continues over whether the temperature income relationship is simply a happenstance association. This column uses within country estimates to show that higher temperature-s have large, negative effects on economic growth but only in poor countries. The findings are big news for future global inequality.

Not only is it a serious threat to the Planet and to people, climate change is also threa-tening the global economy. This Problem needs public private sector collaboration to change the way we produce goods to other methods that guarantee and drive the development of sustainable economic growth. As well as its serious impact on the environment and people, climate change is one of the biggest threats to economic stability Heatwaves make us less able to work and reduce productivity. Cyclones and typhoons devastate millions of people, leaving them in absolute poverty after ruthlessly sweeping away this communities.

From a theoritical point of view, the relationship between economic development and environmental quality is not necessarily expected to be linear while improvement in income per capita. Though economic growth may increase environmental degradation through greaterresource use, at the

Same time higher levels of development may also reduce environmental damage.

This article reviews the economic impacts of climate change and the policy implications of the results. Current estimates indicate that climate change will likely have a limited impact on the economy and human welfare in the twenty-first-century. In fact, the initial impacts of climate change may be positive. However in the long run the negative impacts dominate the positive ones. Negative impacts will be substantially greater in poorer, hotter and lower-lying countries.

CLIMATE OF ASSAM

Riyahzul Hoque

Assam is located between the latitudes 24°9′N to 27°59′N and 89°43′E to 96°02′E longitude. It covers 78,438 square km. area and represent 2.39% of the total land of India. Assam state comprises river valley, Hills and plateau formation.

The state of Tripura and Mizoram located in the southern part of Assam. The tropic of cancer passes accross this two state. Therefore, the climate of Assam classified as sub tropical monsoon climate, with high level of humidity and heavy rainfall, warm summers and mild winters.

Factor influencing the climate of Assam :

(i) Assam is bordered by the Bhutan- Arunachal Himalaya's to the north. The Patkai Naga Range to the east and Mizoram ranges and the meghalaya ranges to the south.

(ii) Formation of alternative high pressure and low pressure zone in the north- west India and Bay of Bengal.

(iii) Pressure of local mountain and valley winds.

(iv) Impact of south west and north weast monsoon that blows over the state.

(v) Pressure of numerous water bodies huge forest cover and development of local cyclones.

The climate varriation of Assam can be seen regionally while the plains of Assam have a tropical climate with high humidity, the hills have a sub-alpine type of climate. The Himalaya and eastern hill ranges also cause orographic rise of the monsoon winds with consequent heavy rainfall in Assam.

Under varying intensities of the climate elements the climate of Assam can be divided into four parts —

(i) Winter : The winter season begins in the middle of november and continues up to the end of February. In this season the average temperature of the state is goes down to 13°c. Fogs are common in this season and rainfall is lowest during this.

(ii) Premonsoon : This season starts usually from the early March and continuous up to early may. In this season temperature begins to rise in the region.

(iii) Monsoon : The rainy season or the season of the south west monsoon begin in Assam leter part of may and continuous upto september. Average rainfall of the state is annually 100 cm. to 200 cm.

(iv) Returning monsoon : This season starts from october and continuous upto November. The temperature and rainfall begins to decrease This is the best time of the year as the weather is clear and neither hot nor cold.

NEED OF CLIMATOLOGY IN GEOGRAPHY

— Jhulan Kr. Das

Climatology is the very much important branch of physical geography. It is reference to the all types of climatic condition of the atmosphere.

According to F. Kenneth Hare climatology is an integral part of physical geography, perhaps closere to the centre than any other.

Climatology is important since it helps determine futures climate expections. Through the use of latitude one can determine the likehood of snow and hail reaching the surface.

climatology is the scientific study of climates. which is the define as the mean weather condition over a period of time. A branch of study within atmospheric sciences, it also takes into account the variables and averages of short term and long term weather conditions.

Climatology is different than metherology and can be devided into different areas of study. various approaches to this field can be taken including Paleo matology which focus on studing the climate over the course of the earth exeistence by examining recources of tree ring, rocks and sediment and ice cores. Historical climatology focuses preimarily on climate changes throught history and effects of the climate on people and events over times. throughout both climatology and meteorology are areas of study that are considered branches of similare area of study, climatology differes from meterology because it's focause on average of weather and climate.

The mission of the climatology uses provides a forum fore publishing

new findings on Environmental principles and technology. currently ours primarey research objective is to encourage and assist the development of bettere fastere measuree of environmental activity.

climatology makes a detail analysis of the intereaction of weathare of climatic elements upon human socites. climatology discuss the various climatic elements, the factores that controal the distribution of climate overe the earth.

In present time the imporetance of climatology is going increasing due to it's positive and Negative perespective.

AIR POLLUTION

Rupsikha Bora

Mixing of unwanted and harmfull substances into the environment is called pollution. contamination of these harmfull substanes into the environment cause the negative effects on the nature. Types of Pollution - air pollution, water pollution, land pollution noise pollution, Radioactive pollution. As well as Light Pollution.

• Air Pollution :

Air pollution is the addition Particle, gases and chemical into the atmosphere that have the potential to adversly affect human health. Following are the important causes of air pollution combustion, chemical industries, processing of industries, welding, volcanic gas, agricultural activities. Burning of fossil Fuels.

• Air pollutant and their efect :

The hazardous effects of air pollution on the environment include :- Disease, global warming, air rain ozone leyer deplition. effect on animals.

• Air Pollution and climate change :

climate change refers to long-term shifts in temperatures and weather pattern. These shifts may be natural, such as through variations in the solar cycle. But since the 1800 s, human activities have been the main driver of climate change.

Burning fossil fuels generates greenhouse gas emissions that act like a blanket wrapped around the earth, trapping the sun's heat and raising temperatures.

Examples of greenhouse gas emissions that are causing climate change include carbon dioxide and methane. These come from using gasoline for driving a car or coal for heating a building. For example clearing land and forests can also release carbon-dioxide landfills for garbage are a major source of methane emissions, energy, industry, transports, buildings, agriculture and land use are among the main emitters.

- Control of air pollution :

→ Low sulphur fossil fuel.

→ Reduction in emission.

→ Zoning of industries away from human settlements for dispersing pollution sources.

→ Destroying pollutants by thermal or catalytic combustion.

→ Changing pollutants to less toxic forms.

→ By Precipitation of pollutants.

APPLIED CLIMATOLOGY AND ITS INFLUENCE ON CAREER BUILDING

— Babita Basumatary

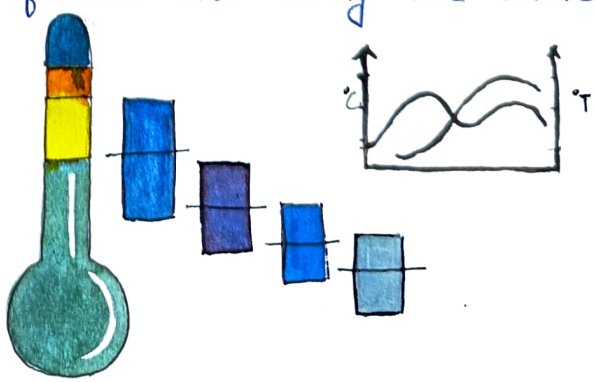
In simple words we can define applied climatology as the study of the effects of climate on natural and social systems.

Apart from this many other geographers have given different definations of applied climatology some of them are cited below.

According to H. Landsberg and W.C Jacob(1951), applied climatology is the scientific analysis of climatic data in the light of usefull applications for an operational purpose.

According to K. Smith (1987) applied climatology may be defined as the use of achived real time climatic information to solve various social, economic and environmental problems for clients and managers in field such as agriculture, industry and energy.

On the basis of the basis of the defination cited above we can say that climatology (applied climatology) is a scientific analysis of climate data for functional purpose. If focuse the way in which the climate elements effect every from of social and economic activities. Application of laws and Principles of climatology addresses the climate the climate factors in involved in a broad range of Problems



relating to the planning, d and other decision making activities of climate - sensitive sectors of modern society.

The goal of the applied climatology is to provide higher level of understanding in climatology in order to understand complex climate based problems and their interrelationship with natural resources and ecosystem management. The students who are interested in this field will be prepared to address applied climate science issues such a climate change, climate variability, environmental degradation etc. as all these issues that are pre today and will become even more important in the future, that will definetely increase the demand for applied climate professionals.

That is how it influances earlier building as nowadays three kind of hazards are key matters of concern.

AWARENESS OF CLIMATE CHANGE

— Krishna Deka

In Present time, the whole world is conscious of climate change in different countries. climate change is a global issues and we must work togethere to save our world. Our planet's climate has always changed. But today climate change is such a big issue. Since the Start of the industrial revolution in 1760. Earth's average temperature has risen faster than ever before. This effect is known as global warming and it's caused by the increase of greenhouse emissions from human activity. greenhouse gases occure naturally on our plant. But human activities such as industrial revolution Started breaking CO_2 records in 1950 & we haven't stopped since. Scientists say, 95% chance that human activities burning more and more fossil fuels like oil & coal, to Power our homes, factories, airplanes and cars. And another cause is the global Population. It has tripled in the past 70 years. we are consuming more Products from animals that release another Pollutant called Methane. So all those gases are in the air and when Sunlight get into the earth's atmosphere than Some of the heat gets trapped and planet gets warmer. And it's called 'Greenhouse Effect'. The UN Says that our earth is about 1 degree hotter than Pre-industrial times. If we warm by 1.5 degrees before the end of the century we Should be fine. But the Problem is Speed. Because right now we are on track to hit 1.5 degrees in only ten years If we don't Slow that warming down, it could mean catastrophe within my & may be your lifetime.

We're already getting a taste — Europe is currently colder than the Arctic, millions of People are likely to Suffer worsening food and water Shortages, we've never Seen a year's worth of rain in less than Seven days, Sea levels are rising about 3 millimeters a year, melting ice Sheets and glaciers, People around the World are already losing their house. And if things carry on, millions more of us we have to Pack up too. Entire coastal cities could be underwater within 80 years like Miami in the US or Osaka in Japan. Entire island nations in the Pacific could completely disappear.

Natural disasters becoming more and more intense, more frequent with devastating consequences. The dramatic impacts of drought in different Parts of the world, all of this is creating a Situations that is a real threat of humankind. And we are not doing enough.

Awareness of climate change of the world there could be various Political, administrative, economic solutions. But there is also a method for climate action from the place which creates the citizens of the future. That is in schools. climate change awareness in the children holds the key to our sustainable future or sustainable livelihoods on the earth. For climate awareness the school culture of sustainability needs to be developed in which the staff, families. The students they all hold a shared values beliefs about the important to taking their respective actions for more climate friendly Society or contributing to reducing the climate change.

Self-awareness is important. Because of climate change directly or indirectly has an impact on our mental health. Scientists say that climate change is the greatest threat facing humanity today. To solve this problem we all need to explore and understand deeply our fear of the future. we also need to Educate our young people not only about the world but about their inner spaces.

The way, we can solve our problem that's we can protect ourselves. composting is effective environmentally safe way to recycle yard waste. This is a simple tip to avoid burning of waste that can harm the nature & can be a dangerous one to human health and contaminates the air, water and soil waste prevention. we should always remember to segregate our waste properly. Reduce, Reuse and Recycle. Reduce the amount of products we use, reuse products instead of throwing them away and recycle the waste products. Waste prevention and recycling can make a significant contribution to reducing greenhouse gas emissions. The waste reduction and recycling initative is expected to contribute at least five percent of total greenhouse gas emission reduction. Planting helps fight climate change. It is one of the simplest and most effective way. emergy make sure to turn off the lights when not in use. using maximum daylight. Spend time on reading instead of using technologies. All of this can be help in climate change.

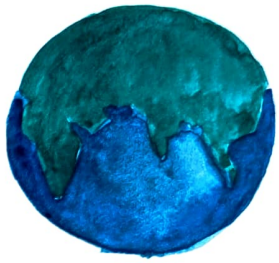
The environment starts with us and it's our responsibility to preserve the planet for future generation.

CLIMATE CHANGE AND POLITICAL POLARIZATION ON SOCIAL MEDIA

Kangkana Sarma

Climate change is not an isolated incident or occurrance, but a global phenomena, leaving its impact on almost every aspect of life, sweeping in its train nation across the world, irrespective of whether they contributed to it or not.

Climate change and political polarization are two of the twenty first century's critical socio-political issues. Here we investigate their intersection by studying the discussion around the United Nations conferance of the parties on climate change (COP) using Twitter data from 2014 to 2021.



Social Media plateforms such as twiter, provide important locations for the every day discussion and debate of climate change. The nature of this role is contested with some pointing to its democratizing potential while others argue that social media is accelerating political polarization. Monitoring polarization is important given that a highly polarized environment has the potential deadlock and threaten pluralist democracies. The study of climate polarisationdemocracies gained momentum in recent years.

Twiter is the ideal plateform for studying climate communication because it is widly used by politicians and journalists, has broad social and culture influance, and because of the rich structural data it capturies. However, many studies highlight the important of twitter as a critical tolls for studying climate communication, political polarization. Begand social media, a broad literature considers the polarization of climate issues using other computational techniques and more traditional approach.

Rapid and effective climate action depends on broad international consensus and collaboration, the growth in polarization may risk political deadlock if it fuels antagonism to climate action policy makers should consider how actionable factor may be driving

this polarization perceptions of political hypocrisy discourse around climate change have been raised previously. For instance, researchers have shown that tweets referencing climate hypocrisy tend to have higher virality.

WORLD'S FAMOUS CLIMATOLOGIST

—Parishmita Nath

Climate change is a variation of average weather Pattern that cause conditions to change, such as the planet becoming colder, warmer or drier over several decades or longer. Here we highlight five of the world's top climate scientists and their most significant contributions to our understanding of climate change.

- **Syukuro Manabe :**

He is known for the developing the first atmospheric model of earth's climate.

Manabe's computerized models, first created in 1967, found that increased greenhouse gas emission cause global warming his models sparked the beginning of long-term research into climate change.

Manabe was born in Ehime Prefecture on the island of Shikoku in Japan in 1931. He received his PHD in geographic from the university of Tokyo in 1958.

- **Susan Solomon :**

She is known for pioneering the theory about how and why the ozone hole occurred in Antarctica. Solomon's theory advanced the understanding of the global ozone layer and changed the direction of atmospheric chemistry research.

Solomon was born in Chicago, Illinois, in 1956. She earned a Ph.D in chemistry from the university of California, Berkeley in 1981.

- **James E. Hansen :**

He is known for testimonies on climate change to congressional committees helped raise broad awareness about global warming.

As the preeminent expert on climate change in the 1980 s, Hansen was hugely influential to the general Public understanding and perception of global warming. Hansen was born in denison, Iowa, in 1941. He holds a masters degree in asthonomy in 1965 and Ph.D in physics in 1967, both from the university of Iowa. He is known as the father of climate.

- **Phil D. Jones:**

He is known for the developing a long-term timeline of the instrumental temperature record.

Jone's data collected at thousands of meteorogical satations, buoys and ships – showed the big picture of earth's temperature and climate systems.

Jones was born in Redhill, England in 1952. He holds a Ph.D in hydrology in 1977 from the depertment of civil engineering at the university of newcastls upon Tyne.

- **Veerabhadhan Ramanathan:**

He is known for the discovery of the greenhouse effect of haloearbons.

Before Ramnath's finding in the mid 1970's earbon dioxide was thought to be the only greenhouse gas causing global warming. Ramanathan was born in chennai Tamil Nadu, India in 1944. He holds a Ph.D in planetory atmospheres in 1974 from stony bhook university in the SUNY system.

Susan Solomon

Syukuro Manabe

James E Hansen

Deadly heatwaves could ... India: Climate change report

'1.5°C Temp Rise May Happen As Early As 2030'

Manka.Behl@timesgroup.com

Nagpur: India could face an annual threat of deadly heat waves, like the one in 2015 that killed at least 2,500 people, if the world gets warmer by 2 degrees Celsius over pre-industrial levels, says the much-anticipated world's biggest review report on cli... The report is to ... the Katowice climate change ... key player in the global event. ... Ringing the alarm bells on ... rise in temperatu... 2030, "Global war... ely to reach 1.5d... (above pre-ind... between 2030

KEY FINDINGS

2°C RISE IN GLOBAL TEMP WILL MEAN

- Deadlier heatwaves in India, Pakistan
- Rise in vector-borne diseases like malaria and dengue
- Many megacities becoming heat-stressed, exposing more than 350 million more people to deadly heat by 2050
- Increase in poverty

GAINS OF LIMITING WARMING TO 1.5°C

- Several hundred million people will escape climate risks and be less susceptible to poverty by 2050
- Reduced losses in yields of maize, rice, wheat and other cereal crops in many countries

1.5°C global temperature rise likely between 2030 and 2052 (at current rate)

Even a 0.5° increase in global warming can adversely affect human health

THE HEAT IS ON

Temp rise (°C) in last 150 yrs

Delhi	1
Mumbai	0.7
Kolkata	1.2
Chennai	0.6

Now of ... to fight global warmi...

UN: Drastic Steps Needed To Check Climate Change

Saving Mother Earth

Hot...

What is the report?

What does it say?

How do we do it?

India too faces UN ... House debate on M...

Earth hottest now, and getting hotter

THE Earth is on track to be the hottest it has been at any time in the past 11,000 years – a period spanning the history of human civilisation – a study says.

Using fossil samples and other data from 73 sites worldwide, scientists have reconstructed the history of the planet's temperature from the end of the last Ice Age, about 11,300 years ago, to now.

They have determined that the past 10 years have been hotter than 80 per cent of the past 11,300 years.

But virtually all climate models predict ... atmosphere ... decades ...

"Now we know that it is warmer than most of the past 11,300 years.

"This is of particular interest because (it) spans the entire period of human civilisation."

The data shows temperatures cooled by 0.8C over the past 5000 years, but have risen again in the past 100 years, particularly in the northern hemisphere. In the land masses are larger, where ... average ... tures ...

country performance index

UK · Denma... · Moroc... · Norway · Chile · India

Study: Global warming to caus... erratic monsoon rain in Indi...

About 5% Increase In Rainfall For Every Degree Celsius Of Wa...

Rokibuz Zaman | TNN

that climate ch... unpredictable ... tremes and th... sequences."

News Headlines
Global Issues
of
Climate Change

How does a state like Bihar tackle climate change?

At a national symposium held by Asian Development Research Institute (Adri) on Tuesday, deputy chief minister Sushil Kumar Modi stated figures of losses caused by six floods in the past 12 years.

"There have been more than 4,000 deaths, 42,000 animals have died and around 14 lakh houses have either collapsed or have been damaged because of ... ly by the government of B... and Adri, which was ... scribed by Sushil Kumar... the first document on wh... the future action will be tak... to combat climate change.

The execution of the pla... will mean that the state w... have to spend over Rs 1,5... crore in the next five years.

The activities includ... forestation, strengthening ... disaster management by se... ting up emergency operatio... centres and purchasing m...

(From left) Cristina Rumbaitis del Rio, Shubhvi Gupta and deputy chief minister Sushil Kumar Modi release the book in Patna on Tu...

The study shows an increase in mean summer monsoon rainfall contributing to precipitation, especially in 6 northeast states

arch (PIK) and Ludwig-Maximilian University in Munich, Germany (LMU). "Hereby, we were also able to confirm previous studies but find that global warming is increasing monsoon rainfall in India even more than ... It is do... ding for sustenance. This makes the Indian economy and food system highly sensitive to volatile monsoon patterns." A look into the past underlines that human behaviour is behind the intensification of rainfall, according to the researchers.

... Starting in the 1950s, hu... ... cally cut greenhouse ... emissions worldwide."

The researchers used 32 CMIP6 models to analyze the Indian summer monsoon's response to climate change and the majority of models project that the increase will contribute to the precipitation, especially in the Himalaya region, the northeast of the Bay of Bengal and to the ... of India. The Indi...

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Saving Mother Earth

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They have determined that the past 10 years have been hotter than 80 per cent of the past 11,300 years.

But virtually all climate models predict Earth's atmosphere will be hotter in decades to come than any time since the end of the Ice Age.

"We already knew that, on a global scale, Earth is warmer today than it was over much of the past 2000 years," said Oregon State University's Shaun Marcott, lead author of the study published in Science.

"Now we know that it is warmer than most of the past 11,300 years.

"This is of particular interest because (it) spans the entire period of human civilisation."

The data shows temperatures cooled by 0.8C over the past 5000 years, but have risen again in the past 100 years, particularly in the northern hemisphere, where land masses are larger.

Climate models project global average temperatures will rise 1.1C-6.3C by the end of the century, depending on the level of carbon dioxide emissions from human activities.

"What is most troubling is that this warming will be significantly greater than at any time during the past 11,300 years," said Peter Clark, a palaeoclimatologist at Oregon State University.

... Earth's position with ... the sun is the main factor affecting temperature ... that time.

Study: Global warming to cause erratic monsoon rain in India

About 5% Increase In Rainfall For Every Degree Celsius Of Warming

India in top 10 performers on climate change index

BUT SLIPS ONE POSITION

Vishwa.Mohan@timesgroup.com

New Delhi: India remains in the top 10 for the second year in a row in the latest global Climate Change Performance Index (CCPI) released in Germany on Monday. ... biggest current emitters of greenhouse gases (GHG) ... China figures at 33rd ... the largest historic ... USA, appears ... list.

... emissions (40%), renewable energy (20%), energy use (20%) and climate policy (20%). These 57 countries and the EU collectively are responsible for about 90% of global GHG emissions. The CCPI is developed by non-profit organisations Germanwatch and NewClimate Institute (Germany) together with the Climate Action Network (CAN International). The CCPI 2021, covering the year 2020, shows that ... G20 countries ...

UK, Denmark, Morocco, Norway, Chile, India

Global warming – a solution

SWAMI DAYANANDA SARASWATI

THE Himalayan glaciers have been the perennial source of water for the rivers such as Ganga, Yamuna, Brahmaputra and ... Now the disturbing news is ... glaciers are receding due to ... This problem of ...

house gases than all the cars and trucks in the world combined." Tens of billions of animals farmed for food release gases such as methane, nitrous oxide and carbon-di-oxide through their massive amounts of manure ... and sheep.

CO_2, fertiliser itself releases nitrous oxide (3) — a green house gas that is 296 times more potent than CO_2. Alarming though these facts are I see in them a reason for hope. All that the people all over the world have to do is to avoid meat eating. In the absence of ... for meat there is no more

optional. But now the ... if they are alive to what is ... to this life-bearing planet. ... justification whatsoever ... continue to be a non ... knowing the devastat... quences of meat eating. Promotion of vegeta... not require any legisla... State. It does require ... heart on the part of m...

Science Notes and ...

COAL CONSUMPTION ... ING CLIM...

The furnaces of the ... burning about 2,000,0... coal a year. Wh... uniting wit... 7,000...

... AND OTAMATEA TIMES, ... SDAY, AUGUST 14 1912.

The Telegraph PATNA WEDNESDAY 27 SEPTEMBER

Govt talks of scary figures at symposium

Climate change worry for state

DIPAK MISHRA

How does a state like Bihar tackle climate change?

At a national symposium held by Asian Development Research Institute (Adri) on Tuesday, deputy chief minister Sushil Kumar Modi stated figures of losses caused by six floods in the past 12 years.

"There have been more than 4,000 deaths, 42,000 animals have died and around 14 lakh houses have either collapsed or ...

(From left) Cristina Rumbaitis del Rio, Shaibal Gupta and deputy chief minister Sushil Kumar Modi release the ...

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Study: Global warming to cause erratic monsoon rain in India

About 5% Increase In Rainfall For Every Degree Celsius Of Warming

Rokibuz Zaman | TNN

Guwahati: If global warming continues unchecked, summer monsoon rainfall in India will become stronger and more erratic, revealed a research that predicts more extremely wet years in the future with potentially grave consequences for more than one billion people's well-being, economy, food systems and agriculture.

The study shows an increase in mean summer monsoon rainfall contributing to precipitation, especially in the Himalaya region — Arunachal Pradesh, Meghalaya, Nagaland, Manipur, Mizoram, Tripura, and hill regions of Assam. Precipitation is water released from clouds in the form of rain, freezing rain, sleet, snow or hail.

The study shows an increase in mean summer monsoon rainfall contributing to precipitation, especially in 6 northeast states

... arch (PIK) and Ludwig-Maximilian University in Munich, Germany (LMU). "Hereby, we were also able to confirm previous studies but find that global warming is increasing monsoon rainfall in India even more than ...

... ding for sustenance. This makes the Indian economy and food system highly sensitive to volatile monsoon patterns." A look into the past underlines that human behaviour is behind the intensification of rainfall, according to the researchers.

... that climate change is about unpredictable weather extremes and their serious consequences," comments group leader and co-author Anders Levermann from PIK and Columbia University, New York/USA on the findings of the study published in the journal Earth System Dynamics. "Because what is really on the line is the socio-economic well-being of the Indian subcontinent. A more chaotic monsoon season poses a threat to the agriculture and economy in the region and should be a wakeup call for policy makers to drastically cut greenhouse gas emissions worldwide."

The researchers used 32 CMIP6 models to analyze the Indian summer monsoon's response to climate change and the majority of models project that the increase will contribute to the precipitation, especially in the Himalaya region, the northeast of ...

PHOTO GALLERY
(Departmental Activities)

Photo Gallery
Departmental Activities

-ভূগোল বিজ্ঞান বিভাগৰ শিক্ষক দিৱস, 2022 উদ্‌যাপনৰ দৃশ্য-

“অতিথিৰ অভ্যৰ্থনা সমিতি

PHOTO GALLERY
(Departmental Activities)

সমস্থ ভূগোল বিজ্ঞান বিভাগ, 2021-22

সম্মেলন সংগীত পরিবেশন ভূগোল বিজ্ঞান বিভাগৰ শিক্ষার্থীৰ দ্বাৰা-

ভূগোল বিজ্ঞান বিভাগৰ আঞ্চলিক পত্ৰিকা- "মৌচুমী, 2022"

ভূগোল বিজ্ঞান বিভাগৰ ছাত্ৰ-ছাত্ৰীৰ দ্বাৰা কৰা ক্ষেত্ৰ অধ্যয়নৰ দৃশ্য

-ভূগোল বিজ্ঞান বিভাগৰ শিক্ষক দিৱস, 2022 উদ্‌যাপনৰ দৃশ্য-

"মৌচুমী"ৰ প্ৰকাশনা অনুষ্ঠান

মহাবিদ্যালয়ৰ সাংস্কৃতিক শোভাযাত্ৰাৰ দৃশ্য বিশেষ (ভূগোল বিভাগ)

মহাবিদ্যালয়ৰ অধ্যক্ষৰ সৈতে অনুষ্ঠানসূচীৰ আলাপ

ভূগোল বিজ্ঞান বিভাগৰ "ছেমিনাৰ" অনুষ্ঠান

সাংস্কৃতিক শোভাযাত্ৰাত অংশগ্ৰহণ কৰা ভূগোল বিজ্ঞান বিভাগ